The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 12. MARCH 23, 1940. VOL. 52.

THE DIFFERENTIAL DIAGNOSIS OF ACUTE FEBRILE DISEASES IN PIGS*

B. A. CLAXTON, M.R.C.V.S.

When your past Hon. Secretary asked me to read a paper on " Pig Diseases," I told him I would do my best regarding the diagnosis of pig diseases, but would prefer not to introduce any matter relating to the treatment of those diseases. Later, when he wrote to me and suggested that the paper should be entitled " The Differential Diagnosis of Acute Febrile Diseases in Pigs," I realised that I had a difficult task, but that if my best could be even moderately good it might be helpful to others dealing with illness amongst swine.

At the outset, I would like to point out that it is proposed to keep within the scope of the title of this paper, and that it is definitely not intended to deal with such controversial matters as the confirmation of swine fever by the Veterinary Officers of the Ministry of Agriculture.

The importance of an early and correct diagnosis of disease amongst pigs cannot be stressed too greatly as a correct diagnosis followed by correct treatment and advice may prevent serious losses to owners of herds. The earliest diagnosis which can be made must be that based on clinical and *post-mortem* findings.

The difficulties in arriving at a definite and correct diagnosis of acute febrile diseases amongst swine clinically are fully appreciated, and it is hoped that if points are not brought out in this paper they will be introduced during the discussion it is intended to arouse. I might add here that I am dealing with these diseases from the point of view of the clinician, although it is fully realised that in certain cases the bacteriologist will have to be consulted.

In acute diseases of pigs there is rarely a history of any value to be taken into consideration, so in the quest of a correct diagnosis the symptoms exhibited by ailing pigs—not only those pointed out by the owner of the herd but also those found by inspection of the whole herd—must be carefully observed and a complete *post-mortem* examination of the carcases of pigs found dead must be carried out. Often examination of one carcase alone will not produce sufficient data on which to base a diagnosis, and it may be desirable to slaughter one or more of the ailing pigs for this purpose. It may be necessary to make more than one visit to premises involved before a diagnosis can be established.

There is no doubt that the most serious losses amongst pigs are due to swine erysipelas and swine fever, but considerable losses may occur from paratyphoid.

Careful note should be made of the age of the pigs involved. Pigs between the ages of three to twelve months appear to be most susceptible to swine erysipelas; pigs recently weaned are the most susceptible to paratyphoid; unweaned and recently-weaned pigs are probably most susceptible to swine pox. Pigs of all ages are susceptible to swine fever, anthrax and foot-and-mouth disease.

Enquiry should be made as to whether the pigs were bred on the premises, or whether they have been recently purchased. It should be noted whether the affected pigs have been castrated recently.

In a most unorthodox manner, I propose to deal with each symptom and when it comes to *post-mortem* findings with each organ or tissue, endeavouring to differentiate as far as possible between each disease, instead of dealing with each disease separately.

Symptoms

I mentioned foot-and-mouth disease, but as there should be no difficulty in arriving at a diagnosis in these cases, it is not proposed to discuss that disease in this paper.

The symptoms observed may be somewhat similar in several diseases. One of the first noticeable symptoms is impairment of appetite, and this early symptom is often of little value. As disease progresses the inclination to take food decreases and animals come to the trough, take a few mouthfuls of food and withdraw to a secluded part of the sty. Subsequently the ailing pigs refuse to come to the trough at all, and lie buried in the straw.

In acute swine erysipelas, great prostration may be, and often is, the first symptom noticed; the pigs suddenly lie down where they happen to be, exhausted. This extremely sudden onset of disease is valuable from a diagnostic point of view as acute swine fever and paratyphoid are generally much slower in development. Peracute swine fever may be rapid in onset, but I have not observed this sudden exhaustion.

Great thirst may be noticed in acute swine erysipelas and acute swine fever, but thirst is not such a common symptom in paratyphoid. The ailing pigs when made to move do so with great reluctance, moving very slowly and often with staggering gait. Pigs affected with swine erysipelas quickly lie down again and crawl under the straw, but more often pigs affected with acute swine fever will stand, with back arched and head depressed, looking thoroughly dejected, for a considerable time. In some cases of acute paratyphoid the pigs remain extremely bright until shortly before death, and in these cases little impairment of appetite may be noticed.

Acute conjunctivitis is one of the first symptoms of swine fever, a dirty, gummy appearance of the eyelids being noticed. Conjunctivitis also occurs in swine erysipelas, but not to such a marked extent, and

*Paper presented to the Central Veterinary Society, at the Royal Veterinary College, London, February 1st, 1940.

oedema of the eyelids may be observed, although this is not a regular symptom.

Vomiting may be noted both in swine fever and in swine erysipelas, but rarely in paratyphoid. In my opinion, vomition is much more common in swine fever than in swine erysipelas.

Constipation is often noticed in the early stages of swine fever and swine erysipelas although, in younger pigs especially, this frequently passes unnoticed with the subsequent onset of diarrhoea. Diarrhoea may be the first symptoms observed in paratyphoid. In swine erysipelas the faeces are often reddish brown in colour, due to being mixed with blood ; in swine fever, the faeces may be blood-stained from haemorrhages in the large intestines but more often are yellowish or greenish and extremely offensive. Diarrhoea may occur in severe cases of swine pox, followed by exhaustion and death, but in these cases the skin lesions are always present.

Discoloration of the skin frequently occurs. In acute swine erysipelas, especially shortly before death, a diffuse purplish reddening of the skin appears—on the abdomen, on the inside of the thighs and in the axilla, or it may be more extensive. Frequently death occurs within 48 hours but more often on the third or fourth day.

In the peracute cases of swine fever there may be little change noticeable in the skin except for a few haemorrhages. Death in these cases may occur within two or three days after the onset of symptoms.

In the less acute cases, swine affected with swine erysipelas may show urticarial markings, often in " diamond " form. This, of course, is characteristic of the disease. In swine fever, the discoloration of the skin, specially of the ears and extremities, is pronounced ; it is not reddening as in swine erysipelas, but more haemorrhagic and cyanotic. In paratyphoid, the most noticeable change in the skin is the greyish anaemic appearance, but discoloration of the ears, tail and limbs may occur in acute cases. The skin lesions in swine pox must be mentioned although, in my experience, true variola is very rare amongst pigs, at any rate in East Anglia. In the course of one outbreak investigated by me, all the typical stages of a pox were present.

Another useful symptom in swine fever, in conjunction with other symptoms, is difficulty in deglutition and respiratory distress, and in these cases examination of the mouth and throat will often reveal acute stomatitis, especially at the base of the tongue, pharyngitis and in some cases definite ulceration may be found. Nasal discharge is commonly observed. These symptoms are not seen in swine erysipelas or paratyphoid.

As far as anthrax is concerned, difficulty in deglutition and respiration may also be noted, due to a marked oedematous swelling of the throat. In certain cases of anthrax no swelling of the neck is observed, and in these cases poor appetite, crawling under and hiding in straw and debility are notable symptoms. Occasionally diarrhoea sets in and in cases which are not immediately suspicious, a mistaken diagnosis may be made.

Pneumonia is a common finding in swine fever, a cough being a not unusual symptom. In swine erysipelas respiratory distress may be noted due to congestion of the lungs.

A history of a number of abortions or premature farrowings followed two or three weeks later by the onset of acute symptoms of disease is likely to indicate swine fever. When swine erysipelas occurs amongst in-pig sows, abortions may occur, but these are generally noted after the onset of symptoms.

Illness amongst sows, with symptoms of fever, inappetence, constipation, diminution or complete cessation of lactation and in-coordination of movement, followed by respiratory symptoms and shortly afterwards, illness with diarrhoea amongst their sucking pigs, is also indicative of swine fever.

Swelling of the joints is another symptom not infrequently present in acute swine erysipelas. This must be distinguished from acute arthritis, an acute febrile disease occasionally found amongst recently purchased pigs, with high fever, lameness and painful swelling of the joints, followed by death and in which discoloration of the skin may occur before death. The disease usually confines itself to one lot of pigs, although losses in that lot may be considerable.

Sunstroke and heatstroke must be mentioned because this is generally an acute febrile condition. The symptoms are dullness and depression, elevated temperature, weakness and difficult respirations. Death may occur extremely suddenly or in from one to three days, often in convulsions. Care must be taken in distinguishing this condition, which naturally occurs in the summer months, from swine erysipelas, which is also more common at that time of the year.

Before passing from clinical observations, a further guide in differential diagnosis is the extent of the outbreak of disease. Swine erysipelas and paratyphoid are more likely to appear in one yard or sty whereas it is probable that swine fever will appear in more than one lot of pigs at the same time, although this is not always the case in the early stages with the peracute type. However, the rapidity of spread from one part of the herd to another is definitely a guide as far as swine fever is concerned. Anthrax is comparatively rare amongst pigs, and generally only affects one or a few animals.

Post-Mortem Findings

Disturbance of the surrounding straw and ground should be noted as indicative of convulsions or pain immediately prior to death.

Examination of the skin is often of considerable value in distinguishing between the various febrile diseases. Haemorrhages may be found in swine fever, swine erysipelas and anthrax. The haemorrhages in swine fever are more marked than in the other two diseases. More general discoloration of the skin, as already described under symptoms, may also be noted. Widespread discoloration of the skin is more suggestive of swine erysipelas. In acute paratyphoid there may be discoloration of the extremities, and there may be noted a few crustaceous exanthematous lesions, but in my opinion these are rarely evident until the febrile condition is passed. Vesiculo-pustular lesions will be present in swine pox. Acute erythema may be noticed along the dorsal part of the neck and back in sunstroke. Any swelling in the region of the throat is immediately suggestive of anthrax and smears should be examined microscopically before conducting the examination further.

The eyes should be examined, swelling and oedema of the eyelids being suggestive of swine erysipelas, and more severe conjunctivitis with a gumminess about the eyelids, suggesting swine fever.

Muco-discharge from the nostrils is often indicative

of swine fever. Frothing from the mouth and nostrils indicates convulsions or asphyxia, and may be present in sunstroke or in anthrax, but it may also occur as a *post-mortem* change.

Examination of the visible mucous membranes may show either cyanosis indicative of anthrax, or pallor which might be evidenced in paratyphoid or sunstroke. Congestion of the mucous membranes will be found in swine fever or swine erysipelas, though in severe cases the membranes may be cyanotic.

If examination of the buccal cavity, tongue and pharynx reveals haemorrhages or acute haemorrhagic inflammation, these findings are suggestive of swine fever. These inflamed areas may be covered with diphtheritic deposits or show ulceration. The larynx, too, may show haemorrhages or haemorrhagic inflammation, again with the presence of diphtheresis or ulceration. Changes of this nature do not occur in swine erysipelas or paratyphoid.

The lungs may be congested or congested and oedematous, as is commonly found in acute swine erysipelas. They may contain haemorrhages of varying sizes throughout the substance, or there may be areas of haemorrhagic pneumonia, sometimes with necrosis, in swine fever. In acute paratyphoid hyperaemia of the lungs may be present, or pneumonia may be found in the anterior or dependent lobes, but haemorrhages are absent, or limited to a few pin-point petechiae.

Haemorrhages may be found under the epi- and endo-cardium. In swine erysipelas, these are very small, whereas in swine fever they may be more in the form of blood splashes.

The pleura may show numerous haemorrhages in both swine fever and swine erysipelas ; they are more common in swine fever. In swine erysipelas, it is not uncommon to find, in addition, excessive fluid in the pleural and pericardial sacs, and this may contain fine threads of fibrin. Blood-stained pericardial fluid is not an uncommon finding in acute cases of swine fever.

The mucous membrane of the stomach is often involved in swine fever, swine erysipelas, and may be in paratyphoid. In swine erysipelas, the pyloric end of the stomach is most frequently involved, the mucosa being inflamed and coated with mucus ; small haemorrhages may be present. In acute swine fever there is generally an intense inflammation, and diphtheresis may be evidenced. Congestion of the mucous membrane of the stomach may occur in acute paratyphoid.

In paratyphoid the stomach is often found to be full of ingesta, and this is often the case in acute swine erysipelas, but in swine fever the stomach frequently contains little or no ingested material.

The small intestine, especially the duodenum and ileum, quite commonly show catarrhal inflammation in swine erysipelas, whereas the latter part of the jejunum and ileum are frequently inflamed in acute paratyphoid, and there may be superficial desquamation of the mucous membrane, although this is more common in the large intestine. Inflammatory changes occur in the small intestine in swine fever and in anthrax.

The large intestine is much more frequently involved in swine fever and paratyphoid, acute and intense inflammation often being present. In acute swine fever submucous haemorrhages are practically always present and typical button ulcers may be found. Definite haemorrhage may occur and large clots of blood may be found free in the lumen of the intestine. In acute paratyphoid the superficial desquamation mentioned above, giving a dirty appearance to the normally smooth surface of the intestine, is frequently present, although this may also be found in acute swine fever. Superficial ulceration of the mucous membrane may be found in paratyphoid. In acute swine erysipelas, it is not uncommon to find the contents of the large intestine to be reddish brown in colour due to inflammatory processes in the small intestine.

In most cases of acute swine erysipelas the spleen will be found to be slightly swollen and darker in colour, whereas in swine fever there is rarely any change, except for slight swelling in peracute cases. The spleen may be slightly swollen in acute paratyphoid also.

The liver does not help very much in the diagnosis of acute febrile diseases.

The kidneys frequently show petechial haemorrhages in the cortex, both in swine fever and swine erysipelas, and these may be present in acute paratyphoid. The bladder is not uncommonly inflamed in acute swine fever, and there may be distinct haemorrhages.

The peritoneum, like the other serous membranes, may be involved in a similar manner, with haemorrhages, fibrinous membranes and excess fluid in swine erysipelas, and haemorrhages or blood splashes in swine fever. The mesentery not infrequently shows marked haemorrhages in acute swine fever. A large quantity of sero-sanguineous fluid in the abdominal cavity should arouse suspicions of anthrax.

The lymphatic glands are extremely useful in differentiating between swine fever, swine erysipelas and paratyphoid. In acute swine fever they are frequently markedly enlarged, intensely inflamed and almost black in colour. In acute swine erysipelas they are swollen, markedly congested and oedematous, often giving a marbled appearance. In acute paratyphoid the mesenteric glands are congested and oedematously swollen, but glands in other parts of the carcase generally appear normal. In anthrax the retro-pharyngeal lymphatic glands may be greatly enlarged or not to any marked degree, but there is generally haemorrhagic infiltration.

Examination of the joints, especially if any swelling is apparent, should be carried out. In acute arthritis there is inflammation, synovial fluid has partially or completely disappeared, and often a fibrinous deposit is found.

Having completed *post-mortem* examinations a conclusive diagnosis may be possible, but it is realised that in a few cases it may still be quite impossible to decide whether a case is swine fever or swine erysipelas. In these cases material should be submitted to a Veterinary Laboratory for the purpose of ascertaining whether swine erysipelas is present. If the laboratory report is positive for that disease it does not exclude the possibility of a coincident infection of swine fever, but this may not be realised until failure to respond to serum treatment for swine erysipelas has been observed. In some cases, it may be advisable to submit material for laboratory examination for swine erysipelas, to differentiate between that disease and acute arthritis.

It may be considered by some Fellows and Members that the symptoms and lesions I have described for acute swine fever are in many respects similar to those

described in veterinary literature for swine plague. I have purposely refrained from mentioning that disease earlier because, to the best of my knowledge, I have never seen a case of pure swine plague, all those cases which have been suggestive of that disease, especially the pectoral form, having ultimately proved to be swine fever.

Summary of Principal Features

I will now summarise the main findings in the various diseases.

Swine Erysipelas.—Extremely sudden onset of symptoms, prostration, great thirst, purplish-reddening of the skin of abdomen and death, with *post-mortem* findings of acute gastritis, swelling of spleen, congestion and oedema of lungs, swollen and marbled appearance of lymphatic glands, and excess fluid with fibrin in the serous cavities.

Swine Fever.—Generally less sudden onset of symptoms, dullness, crawling under straw, bluish-purple discoloration of the skin of ears and extremities, vomition, constipation or diarrhoea, loss of condition followed by death, with *post-mortem* findings of haemorrhagic inflammation of the mucous membranes with diphtheritic or ulcerative changes in the organs involved, sub-mucous and sub-serous haemorrhages and intense inflammation of the lymphatic glands.

Paratyphoid.—Onset of symptoms slower than in swine erysipelas and swine fever, dullness, diarrhoea, and with disease more or less confined to the alimentary tract. *Post-mortem* findings, acute enteritis with superficial desquamation or ulceration of the mucous membranes of the intestines, lymph glands swollen and congested.

Sunstroke and Heatstroke.—Sudden onset of symptoms after exposure to sun or excessive heat. Erythema of the neck and back, convulsions and not infrequently, death. *Post-mortem* findings, frothing from mouth and nostrils, congestion and oedema of lungs.

Swine Pox.—Symptoms of acute systemic disorder, with the formation of typical pox lesions.

Anthrax.—Acute swelling of the throat with difficult deglutition and respirations. Demonstration of *B. anthracis* in smears from lymph gland.

In conclusion, I should like to say how much I appreciate the honour of presenting a paper before your Society. I trust that none of you will be too disappointed that I have nothing new to add to veterinary literature regarding the "Differential diagnosis of acute febrile diseases amongst pigs." My intention in preparing this paper was to promote an interesting and useful discussion, and I hope I have not occupied too much of the time available myself.

. . . . . .

Discussion

Dr. Tom Hare opened the discussion in the following terms: Since we cannot induce any clinician to open this discussion I suppose you will forbear if a pathologist offers a few comments. I would first like to express to Mr. Claxton my personal appreciation of his address, also of his courage in suggesting that a veterinary surgeon could accurately diagnose the febrile diseases in pigs upon the symptomatology alone. I dare not make such a claim on behalf of my profession—I think it would be rather a bold thing to do. However, we appreciate that our colleagues in the Ministry of Agriculture have facilities for improving their knowledge in this respect which are denied to us ordinary folk. But I do want Mr. Claxton to keep this in mind—that accurate diagnosis is of importance, not only for our own sense of satisfaction but for its significance to the owner.

He made a statement that I am going to challenge straight away. He said, "You may not be able to maintain your diagnosis after your first visit; you may require further visits." Meanwhile, Mr. Claxton's stockowner is "nursing the baby." I claim that it is our duty to take the appropriate measures to obtain a diagnosis at our *first* visit, and I certainly hope our colleagues at the Ministry of Agriculture do not make it a practice to do otherwise.

As a mere pathologist with a not inconsiderable experience of *post-mortem* examinations of pigs I personally cannot make an accurate diagnosis by naked-eye examination on a *post-mortem* examination—and I think that by now I can claim to know how to do a *post-mortem* examination and how to look for the pathological changes in various organs. It all comes down to this, that Mr. Claxton's advice is a tentative guide only. He eliminates a certain number of things but he still leaves us with a residue, and a residue which I claim can only be satisfactorily determined by laboratory technique, such as cultural examination of the appropriate organs, etc. I claim that when any clinician suspects the existence of any of the febrile conditions that Mr. Claxton mentioned, it is his bounden duty to secure laboratory assistance, and to advise the owner on the proper isolation and other hygienic measures.

There is another point I am going to challenge him on and that is his statement as to the incidence of swine plague. I cannot give the figures accurately now, but my general impression of the many hundreds of *post-mortem* examinations I have made on pigs would be that swine plague amounts to approximately between 5 and 10 per cent.: it is not very high, but it is a significant figure. Pasteurellosis can only be determined by laboratory technique; you cannot determine it by naked-eye *post-mortem* examination, however skilful you are.

There is one other point I should like to introduce. I was rather hoping Mr. Claxton was going to mention the difficulty of differentiating acute coccidiosis in weaners. I cannot speak with intimate knowledge of the clinical symptoms of the acute form of coccidiosis, but it is very common and the point I want to insist upon now is that these weaners will occasionally die of acute uncomplicated coccidiosis within 18 hours to three days of the onset of illness. The books err in failing to point out that coccidiosis in weaners is frequently acutely febrile—certainly 2 or 3 degrees rise in temperature. The books usually represent coccidiosis as a chronic disease, but in weaners you must look out for the acute febrile case.

It is not permissible to go beyond the limits of Mr. Claxton's paper on to treatment, but he advised the use of antiserum as a means of differential diagnosis. I think that is a retrograde practice, particularly for our younger graduates—to rely for differential diagnosis upon the efficiency or otherwise of an antiserum. That is putting the cart before the horse; it is bad practice. I am referring particularly to differential diagnosis by noting the effects of the routine use of swine erysipelas antiserum.

The Ministry's swine fever policy has had an enervating effect upon our profession. It has tended to establish in the minds of some that there are two infections of pigs, swine fever or something which the Ministry does not confirm as swine fever; and since the Ministry is only concerned about swine fever, it does not matter

very much what the non-swine fever infection is. I doubt if the Ministry's policy for all these years has reduced the incidence of swine fever in this country. I would like to see the Ministry considering the more positive and practical policy which I have several times tried to hammer out with the chief veterinary officer—but he won't take any notice of me. (Laughter.) My policy is to protect pigs from 3 to 4 weeks upwards, by the routine inoculation of vaccine against paratyphoid, erysipelas and plague. Where that has been done I think there can be little doubt from the results, of which I have records going back for seven years, that where an outbreak of swine fever does occur, the pathological effects of the virus are mild. I have very little doubt that the lethal effects of swine fever in natural outbreaks are due to the so-called secondary organisms, and if we can get pigs highly immunised by properly made vaccines, introduced properly at regular intervals, we can reduce considerably the incidence of pig infections. In addition to routine prophylactic vaccination, we should train the pig breeders in the proper hygiene of their farrowing sheds and weaning pens as a preventive of the prevalent parasitic infestations, particularly worms and coccidiosis. I believe mine to be a practical policy of more value to the veterinary practitioner and his client than the policy by which for some 25 years the Ministry of Agriculture has succeeded in restricting the initiative and depressing the mind of our profession.

Mr. J. D. Williams said that he was speaking with very limited knowledge indeed of pigs and their diseases. Some years ago, however, he had considerable experience of swine fever: he was one of those gentlemen who went round and found carcases or dug them up to send to the Ministry of Agriculture. From what he remembered of it then, it did not seem to be necessary for a laboratory examination to diagnose swine fever.

Recently he had had experience of swine erysipelas—and swine erysipelas alone—mostly, he thought, because the herd happened to be what one might term an absolutely self-contained one. The disease usually occurred in one animal—sometimes two—and when these outbreaks occurred in these herds, if they used swine erysipelas serum, they generally managed to save the pig. The outbreaks generally occurred over three or four months.

He knew nothing of the other diseases mentioned, but so far as swine fever and swine erysipelas were concerned he would not have laboratory examination: while one was sending the carcase up one might be losing valuable time. Dr. Hare recommended inoculation against everything, so far as he could tell. He (Mr. Williams) regarded that as absolutely unnecessary. It was a big undertaking to inoculate a large number of pigs.

In reply to Mr. Hodgman, who asked him if he had understood him correctly, that he made a diagnosis of swine erysipelas simply because the herd mentioned was self-contained, Mr. Williams said that he did not mean that; he thought the infection came from the soil in green stuff. The pigs were not fed on swill.

Continuing, Mr. Williams said that he wanted to ask Mr. Claxton if he could give them any information on the question of "carriers" after the pigs had been treated with serum for swine fever or swine erysipelas.

He desired, in conclusion, to thank the essayist for coming there that afternoon: he knew his paper was meant to be provocative and he thought it had been.

Mr. W. J. B. Watson said that he wished to ask a number of questions about the diagnosis of febrile diseases in pigs because, in his opinion, it was one of the most difficult tasks confronting the country practitioner. In the first place, Mr. Claxton mentioned pharyngitis in connection with swine fever: he would like to know how to diagnose that in life—on *post-mortem* examination it might be fairly easy. There must be a difference in virulence between outbreaks of swine fever and swine erysipelas. He had known instances in markets where pigs in one pen had been diagnosed as having swine fever and pigs in the next pen had remained clear.

In regard to contagious pneumonia in young pigs, which he thought was a rather important matter, he wondered if Mr. Claxton could give them a few hints as to differential diagnosis. In reference to peritonitis and fluid in the abdomen associated with anthrax, it was his experience that these were of fairly common occurrences in any case: he thought they could be associated with a mechanical or an irritant enteritis due to faulty feeding, particularly just now with such poor feeding stuffs.

Concerning temperature, Mr. Claxton might give them a tip or two about that in various diseases. In his experience even healthy pigs varied very much in temperature; he got a temperature of 105 degrees in perfectly healthy pigs. Regarding the spleen in anthrax, he had never seen a case of anthrax in pigs, but he had often wondered if the spleen was enlarged, as in other animals affected with that disease.

The petechiae in the kidney, that were supposed to be an aid to the diagnosis of swine fever, he found to be a common symptom of any febrile disease from which pigs suffered. Ulceration of the bowel in swine fever did not seem to be always constant; also, he thought that one seemed to be able to get such a number of types of ulceration.

Mr. E. F. McCleery observed that, as most of those present would appreciate, he could not claim to have a great deal of experience of the actual diagnosis of diseases of pigs *ante-mortem*; he saw more of these animals when they were sent in for slaughter. He would, however, say straight away that he had always considered the matter of the diagnosis of febrile diseases in pigs extraordinarily difficult. He was of the opinion that in reality the pig was a very sensitive animal and showed signs of any disease very rapidly, particularly as regards its skin, discoloration of which occurred, to some degree, in practically all diseases.

In straightforward cases of swine fever where one got the button ulcers on and in the vicinity of the ileo-caecal valve there was little or no difficulty, but in those cases where there were other lesions present—for example discoloration of the skin, and even although it was stated that such discoloration varied in different diseases—he found it very difficult to differentiate between the various diseases in a large number of cases.

As regards the internal organs, one found the petechial haemorrhages of the kidney were extremely common and he thought they invariably existed in all febrile diseases of the pig, even if it was only an ordinary case of digestive disturbance.

One condition which he had definitely met with on only two occasions, and then not in this country, was sodium chloride poisoning, and he often wondered whether such salt poisoning was not in fact more common than might be anticipated. A case which he could remember well was caused by feeding pigs on swill which came from a well-known hotel. The owner was very disturbed, losing about 14 pigs very suddenly. Material was sent up for swine fever diagnosis, but there was nothing doing there. (Laughter.) Eventually the case was investigated at a Veterinary College and it was established that the condition was sodium chloride poisoning. It was discovered on investigation at the hotel that a sack of salt had burst, and in order to get it out of the way it had been emptied into the swill tub.

Another point which he had noticed was the number of occasions upon which swine fever and swine erysipelas were met with together; that was not at all an uncommon experience in the North. Another point which was observed in connection with these two diseases was the many occasions when one started with a case of swine erysipelas and then in two months or so the pigs would go down with swine fever; whether there was any connection between the two diseases he did not know.

This speaker added his thanks to the essayist for a most interesting and instructive paper and stated that he would look forward with great interest to its publication in the *Record*, when one would have more opportunity to peruse it thoroughly.

Mr. R. Bennett took part in the discussion, contributing observations on several points.

The Honorary Secretary asked if Mr. Claxton could inform them what was the practice in other countries in connection with the diagnosis of swine fever.

Mr. Matthews said he thought that in the course of discussion it was evident that Mr. Claxton's paper had not yet been fully appreciated there that afternoon. He could quite realise the reason, because he had had the advantage of scanning through it before the meeting and he appreciated, having done that, that they would do the paper greater credit when they read it than they could when they were just listening to it.

Mr. Claxton had exercised great discretion because he had carefully refrained from setting out lists of symptoms and saying "if you get List A it is so-and-so, and if you get List B it is something else." All of them had their pet signs, and he had no doubt that Mr. Claxton, being human, had his. He had stated every point with some reasoning, but not claimed any as diagnostic.

He (Mr. Matthews) thought that perhaps there was not so much discrepancy between Mr. Claxton's view and that expressed by Dr. Hare as appeared on the surface, as would be seen when the paper was printed. The clinician must do his best to arrive at a diagnosis on the spot. Mr. Claxton had a wide experience of pig diseases, for his country was well populated with pigs. As had been said, in order to obtain a diagnosis, laboratory methods were often very desirable, but not always practicable, and he thought that by clinical methods based on experience and close observations one could arrive at a higher degree of accuracy. Early in his paper Mr. Claxton had struck a warning note: he had told them, if one was called to see a sick or dead pig, to be very careful to examine all the rest of the stock on the premises. The speaker's experience of that was that it was a very valuable procedure when one was dealing with those diseases of which not much was known. He once put it to Mr. Anthony of Brierley Hill—who had probably more experience of pigs' insides than anyone in the country—that he had often made an extensive *post-mortem* examination without finding anything to which death could be attributed, and Mr. Anthony agreed with him that he had found the same difficulty.

There were just two points he would like Mr. Claxton to deal with in his reply. One was the frequency of pneumonia in pigs which appeared to be perfectly healthy. The lesions which were evident on *post-mortem* examination seemed to have caused the pig little, if any, discomfort in life. In some districts these lesions appeared to be regarded as the normal condition of the lung, but he was perfectly sure that the condition was not normal: whether it was associated specially with some defect in their hygiene, which in this country was very defective, he did not know. The other point he wanted to make was to express the hope that Mr. Claxton would relax discretion just a little and deal very faithfully with the button ulcer when he replied. He was quite sure that all of them would agree that Mr. Claxton in coming there had shown courage and that he had contributed something to the solution of their ignorance of the diseases of the pig.

Dr. Hare said that he had always been given to understand that the condition referred to by Mr. Matthews was the result of shock; *i.e.*, that shooting or sticking a pig usually produced reflex vomition of varying degree. Those pigs which aspirated the vomitus had small areas of early collapse of the lung. It would appear that on the slaughtermen going into the pens the pigs got so excited that they were pre-disposed to slaughter-shock.

Mr. Matthews commented that that was a partial answer, but not by any means complete.

The Reply

Mr. Claxton thanked the Fellows very much for their response to his paper. He was very disappointed that Dr. Hare had had to leave. Their profession could not afford to be as divided as Dr. Hare, apparently, would like it to be. Veterinary bacteriologists and pathologists, veterinary practitioners and veterinary officers in the public service could not do without each other, and they could all help each other. In his paper he had said early on that one would have to consult the bacteriologist in many cases, so perhaps he need not reiterate that. They could not always make a diagnosis. Mr. Matthews had said that he had had to admit being baffled: so had he; so had they all, no matter how strict their examination.

An important matter was the loss which would be incurred by not making a diagnosis at the first visit, nor at the second, nor even at the third, until one had consulted the laboratory worker. They took specimens, they sent them away, they got a reply in four days, "not this or that"—and perhaps after a fortnight they might get a diagnosis. In the meantime half the herd had gone.

He was very interested to hear Dr. Hare's remarks regarding swine plague and he should watch very carefully (as he had in the past) in the hope that he might see a case that he could recognise as such. As regards coccidiosis, he did not recognise this disease as an acute febrile condition, and it was for that reason that it was not introduced into the paper. It might be, however, in very few cases an acute febrile disease in exactly the same way as piglet influenza might be. Mr. Barclay Watson had mentioned contagious pneumonia in pigs and he thought there again they were more or less dealing with that piglet influenza which, in his opinion, was rarely an acute febrile disease, and that was the reason why it had not been brought into the paper.

Dr. Hare had also referred to the fact that practitioners did not get the shelter enjoyed by the officers of the Ministry. His reply to that was, why do so many practitioners, immediately they see any illness, of an acute nature, amongst the pigs advise the owner to report it as suspected swine fever? They obviously suspected swine fever or they would not report. Alternatively they were wanting some shelter in the eyes of their client.

Antiserum therapy used as a diagnostic agent was, to his mind, a very poor and expensive method. He tried to impress the importance of getting a diagnosis, if possible, to prevent loss to the owner.

Mr. Williams had spoken of swine erysipelas in self-contained herds. As he had said before, he was not a bacteriologist, but he believed the *Erysipelothrix rhusiopathiae* was a saprophyte, and it was common knowledge that once an outbreak of swine erysipelas had occurred on premises recurrence might crop up. On premises where pigs are fattened they had tried by concreting to prevent the organisms maintaining a separate existence and, in many cases, they had been successful in that further outbreaks had not occurred on those premises.

Mr. Williams had mentioned that he would not bother about laboratory diagnosis as far as swine fever and erysipelas were concerned. That was an exceptionally bold statement, because he thought there must come a time when it would be quite impossible to distinguish between the two diseases in the early stages.

Mr. Williams had mentioned "carriers." The "carrier" in swine fever was not uncommon, in his opinion. He had noted some very disappointing results following the administration of serum in adults when disease had occurred amongst the young, weaned pigs. He could remember one instance, in particular—a herd of approximately 45 to 50 sows. They had been farrowed down about the same time and the castrator carried infection to the premises when he castrated the pigs. They had traced five movements of his and he had left swine fever wherever he went. The pigs were on the sows at the time of castration; they were apparently healthy ten days later when they found swine fever

on the premises. He himself recommended serum immediately for these sows. They were treated by the owner's veterinary surgeon, after consultation with him, and the latter had agreed that it seemed an ideal case for serum treatment. These sows remained apparently healthy and they farrowed down quite normally, but half way through the lactation period the sows themselves began to die and swine fever was demonstrated; furthermore, after the pigs were weaned they all went down with the disease.

Examination of the mouth in pigs was not so difficult as some people imagined. The most convenient way was to noose the animal well and draw the head fairly tightly to some beam or other. When one had got the pig secured in that way, provided one could get a good stick, one could look into the mouth when one could see quite a distance over the back of the tongue. In the smaller pigs it was not so difficult, but beware of getting the fingers caught on the tushes.

In regard to variations of virulence, they did see cases of swine fever which spread much more rapidly than others, which made one believe that some cases of the disease were much more virulent than others.

Mr. Barclay Watson had mentioned that blood-stained fluid in the peritoneal cavity was a common finding at *post-mortem* examination. He must say that in an experience extending over thousands of *post-mortem* examinations he had not found it to be so. Perhaps he had not explained the condition he meant so far as anthrax was concerned. He had not met anthrax on *post-mortem* examinations, but the condition which he should look for and suspect was more than a blood-stained mixture: it was a reddish serous fluid in large quantities. There was a greater or lesser degree of tension of the abdomen with this fluid.

Anthrax in pigs, according to Mr. Bennett, occurred in flesh-fed swine. For a long time he, too, was under that impression, and he could remember when he first joined the Ministry of Agriculture how, suspecting anthrax, he had rung up his divisional inspector and asked him what he should do. The inspector asked him if the pigs had received any flesh and on receiving a negative reply he said "carry on with your *post-mortem* examination." They had had several cases of anthrax amongst pigs during the last 18 months and in no case had they had access to flesh or swill; he thought it had been caused by feeding stuffs of foreign origin, as was probably the case in anthrax in cattle.

According to all the literature which he had ever read on the subject of anthrax in the pig, the spleen was apparently not enlarged. That organ to some extent was a poor place from which to attempt to get anthrax organisms. They were told that they must take their smears from the lymphatic glands or from the oedematous fluid surrounding those glands.

In reference to temperature, it was very little use taking a large number of temperatures, but in many of the acute febrile diseases the pigs were prostrate at the time of examination and the thermometer was very easily inserted into the rectum, and the temperature could be taken fairly accurately.

He agreed with all the speakers who mentioned the petechial haemorrhages in the kidney: they were not as good a guide as one would like them to be if present, in many acute diseases of pigs, but if one got diffuse haemorrhages under the capsule, he thought one could be guided more towards swine fever than by the mere pin-point haemorrhages that one found in other conditions.

Mr. Watson had asked regarding the diagnosis of swine fever: no ulcers found until the twenty-seventh *post-mortem* examination. Unfortunately he knew of cases exceeding that number. They had one case during the past year in a self-contained herd of about 100 sows, and on the premises altogether were about 800 pigs; nothing had been imported for over two years. The sows were tethered on grass, and there was one hut to each and all had sucking pigs. The sows were the first to show symptoms. The pigs in the buildings remained perfectly healthy to all intents and purposes. The sucking pigs began to die as well as the sows, particularly from lack of mothers' milk. After the owner's veterinary surgeon reported the case as suspected swine fever, material was submitted for swine erysipelas examination, with negative results; but before they could get lesions which were sufficiently definite to make a diagnosis they had made *post-mortem* examinations on as many as 18 sows and the best part of 100 young pigs. Therefore, he fully appreciated all the difficulties which arose in making a definite diagnosis—but they needed to do the best they could.

Mr. McCleery had mentioned discoloration of the skin which he said was common to all conditions in pigs. He (the speaker) agreed that there might be discoloration of the skin. Discoloration of the skin, of course, was often a *post-mortem* change.

Salt poisoning was omitted from the paper because, in his opinion, one rarely got an acute case with any temperature; in fact, in some cases, he had discovered the temperature to be sub-normal.

Mr. Bennett had made reference to the reddish skin lesions of swine fever and the bluish lesions of swine erysipelas. He did not know that he altogether agreed with Mr. Bennett there. He could see the cases he meant, because they had occurred, but his opinion was this: one was more likely to get reddening in swine erysipelas, and he should never forget having it pointed out to him by a French veterinary surgeon who was on a visit to this country and who accompanied him on some of his enquiries—that an easy way to differentiate a rash was to press one's thumb on it: if the condition was swine erysipelas the rash would disappear on pressure but would return subsequently; if it was swine fever it would not disappear to the same extent.

Mr. Bennett had also stated that he had experienced swine erysipelas followed very shortly after by swine fever. He, the speaker, would point out that the latter condition must have been introduced by other means during that time. The diagnosis of swine erysipelas did not negative the presence of swine fever.

He could not tell Mr. Holmes exactly what they did in other countries in connection with the diagnosis of swine fever.

Mr. Matthews had mentioned the pneumonic lesions on *post-mortem* examination. He did not know whether Mr. Matthews was referring to an acute febrile disease: the pigs were apparently healthy before they were slaughtered, but it might be that he was dealing with a chronic pneumonia following piglet influenza, and he believed that these pneumonic lesions carried on almost throughout life in some pigs. They must be the result of some condition occurring early in the animal's existence—possibly piglet influenza.

Mr. Matthews wanted him to say a few words on the button ulcer: what he wanted him to say he did not quite know. They had a very learned paper on the subject at Yarmouth from a far greater authority than the speaker could claim to be. The button ulcer, to his mind, developed on one of those sub-mucous haemorrhages, and that was why in hyperacute cases of swine fever they might only find the submucous haemorrhages or haemorrhage in the lumen of the intestines. He had seen animals showing typical lesions of acute swine fever in which the haemorrhages appeared as circumscribed blood clots on the mucous membrane. The ulcers had developed in every case, in his opinion, with a submucous haemorrhagic base. The necrosis occurred in the concentric rings, which they all knew, and the ulcer was raised above the surface of the mucous membrane. In paratyphoid the ulcer was more superficial and it seemed to be surrounded by the raised portion of the mucous membrane.

He had told them, in the first place, that he was not going to deal with the confirmation of swine fever: he would say, however, that, in his opinion, the button ulcer played an important part in the diagnosis, but not the whole part.

THE VETERINARY RECORD

March 23rd, 1940.

DIAGNOSIS OF DISEASES OF SWINE

THE diagnosis of pig diseases is admittedly difficult and it is very necessary for those with experience of this work to publish their results for the benefit of others. The writer of the paper published to-day makes no claim for originality but any paper which rouses discussion is of great value on that account alone because such discussion releases for general use a large number of personal observations on particular outbreaks. It is symptomatic of the pig disease situation that in the discussion many speakers ask for information.

Some veterinary practitioners are perhaps unwilling to do pig work, probably because of the great difficulty of diagnosis of many pig diseases by clinical means. At the same time, many pig-keepers are exasperated by the little interest shown by veterinary practitioners in their problems. The avoidable losses in pig farming are enormous, mainly due to lack of elementary knowledge of hygiene and, it must be said in many instances, of commonsense. The result is a rich harvest for quacks and sellers of "cure-alls." It is common to find hard-headed pig-keepers paying fantastic sums for simple mineral mixtures.

As has been said, the diagnosis is usually difficult and often impossible without laboratory help. The really costly diseases are insidious and more damaging to the industry than spectacular outbreaks of swine fever. By far the largest part of the cost of producing a pig is the cost of the food and even a few weeks' setback in growing pigs may have disastrous results for the pig farmer. Laboratory workers are willing and anxious to help both themselves and the general practitioner by making examinations and giving advice where required. It is unfortunately necessary to have considerable experience of *post-mortem* examination of pigs to be able to assess the importance of various findings. One often finds pig-keepers who do their own *post-mortem* examinations and who have a completely unfounded belief in their ability to diagnose disease. It is obvious that the veterinary surgeon is the only one equipped by training to do this work. Few general practitioners have the time to do detailed *post-mortem* examinations of large numbers of pigs but in the laboratory is available the concentrated experience of years. It may be pointed out here that some laboratories are carrying out special research into particular pig diseases and that the co-operation of general practitioners is vital to the prosecution of this research. The results of these research activities are, of course, later available to practitioners who are, as a result, in a better position to deal with disease in the field.

It is difficult to foresee the future of pig farming in this country. Cheap feeding stuffs in unlimited quantities which produced the "forced-feeding" type of pig farming may never return. The type of pig which maintained its position solely because of high rate of weight gain, often at the expense of disease resistance, will probably disappear to be replaced by a hardier type more suited to the general farm. The diseases due to inherent low resistance will disappear. but attempts to use all and every kind of edible waste may produce obscure nutritional disorders which require expert help by the veterinary practitioner, and behind him the laboratory, if full use is to be made of these waste products. The increased value of the individual pig should make adequate payment possible, though whether the absurd prices ruling in the last war occur again remains to be seen.

ANGLO-FRENCH COLONIAL COLLABORATION

The Colonial Office announced last week that Mr. MacDonald, Secretary of State for the Colonies, and his French colleague, M. Georges Mandel, had agreed on further measures to be taken to perfect collaboration between the British and French Colonial Empires within the framework of the general agreement of last November. In many parts of the world their Colonial territories are neighbours and the two Ministers feel that each Government has much to gain from the experience of the other. They have therefore decided that the Colonial Office and the Ministry of Colonies should keep in constant touch, and that an organisation should be created both in London and in Paris to maintain a permanent *liaison* between the two Departments.

This collaboration, which must have as its principal object the greater well-being of the Colonial peoples, will be extended to the Colonies themselves. There will be conferences from time to time between the Governors of neighbouring British and French Colonial territories. This contact will also be established between the administrative and specialist officers of the territories. For instance, the heads of the medical services in the Colonies are receiving instructions to exchange information and co-ordinate their activities on matters of common concern.

* * * * *

DOCTORS AND RESERVED OCCUPATIONS

The central emergency committee of the British Medical Association have unanimously recommended the Ministry of Labour to remove members of the medical profession from the list of reserved occupations. Mr. H. S. Souttar, Chairman of the Council of the B.M.A., said last night (says *The Times* of Monday last): "Many of the older men in the profession with heavy obligations were connected with the Territorials or the Reserve. Those older men have joined up. We feel that the position would be fairer if medicine were withdrawn from the reserve occupations up to the proclamation age. When the proclamation age is raised the medical men of these higher ages will automatically become liable for service. The slightly older men up to 35 are probably the most useful of all for Army purposes."

* * * * *

Mr. Walter Elliot, Minister of Health, stated in the House of Commons recently that he was not prepared to introduce legislation for the compulsory pasteurisation of milk in central depots.

CLINICAL COMMUNICATION

Arthritis of the Carpal Joint in a Mare

T. L. WRIGHT
AND
C. W. OTTAWAY

Subject.—Seven-year-old brown hunter mare.

History.—On November 10th, 1937, a swelling was noticed in the region of the off knee after school-jumping. There was no lameness. This was treated by the owner's groom with hot fomentations and walking exercise in hand. In ten days the swelling had subsided and a lightweight was sent to ride the mare at exercise. Within a few minutes the mare became very lame and was led back to the stable.

Subsequent History and Treatment.—On examination, it was found that the off knee was swollen and flexion was very painful. There was a spot very sensitive to pressure towards the inner aspect of the front of the knee. No wound could be found. Kaolin poultices were applied and in two days' time a synovial discharge appeared at this sensitive spot; a small puncture was found and treated with astringent antiseptic lotion. A larger swelling was now forming on the outer aspect of the front of the knee. On the third day pain had increased considerably and the knee was X-rayed (Mr. H. J. Ede). This showed no fracture, but suggested the formation of pus in the region of the upper edge of the unciform bone. In discussing this case with Dr. J. McCunn, he suggested applying Scott's dressing and this was done on the sixth day. On the seventh day, in consultation with Mr. J. Willett, it was decided to put the mare in slings and continue poultices. This treatment was continued for another seven days, when the second swelling broke and freely discharged purulent synovial fluid. A pocket, which now formed about 1½ inch below this wound, was lanced in a further seven days to allow of better drainage. Pain and swelling had increased, and although the patient continued to feed, it was considered that the possibility of recovery was remote. The owner was anxious to give the mare every possible chance, so treatment was continued and a counter-irritant was applied to the knee. No improvement was obtained, and on the 39th day from the commencement of the case, the mare had an acute attack of colic during the night. Although this had abated by the morning, the owner was persuaded to have the mare destroyed.

Post-mortem Examination.—Dissection of the affected limb showed evidence of a severe injury in the region of the carpo-metacarpal joint on the lateral or outer aspect of the carpus. It was impossible to form an accurate opinion as to the exact nature of the original cause of the lesion by dissection owing to the changed nature of the tissues, but it was probably due to a severe blow. On the other hand, as the damage extended into the carpo-metacarpal joint, and the synovial sheath of the extensor pedis tendon (extensor digitalis communis) was open and contained a "chalky exudate," it was possibly due to a small puncture wound which closed over and was not noticed by the groom. The fibrous layer of the capsular ligament was considerably thickened in this area. The adjacent cartilages of the os magnum (third carpal) and the large metacarpal bones were pink in colour, slightly enlarged, and showed definite signs of erosion. The interosseous ligament between the os magnum (third carpal) and the unciform (fourth carpal) bones was somewhat thickened and the upper surface of the os magnum was also pitted and eroded, indicating an extension of the pathological process into the intercarpal joint.

It is interesting to note that the synovial sacs of the intercarpal and carpo-metacarpal joints communicate between the os magnum and the unciform bones, and, as there was no evidence of injury to the intercarpal joint, it is probable that the infection spread *via* this communication.

The injury to the synovial sheath of the extensor pedis tendon was undoubtedly partly responsible for the swelling (and later the discharge of synovial fluid and pus) noticed following exercise ten days after the injury. It was also impossible to determine the cause of the wound which appeared on the inner aspect of the joint; but, although the discharge appeared here first, it was secondary in nature to the injury on the outer aspect. The joint capsule in this region was intact, so that it was presumably due to an increase of fluid in the periarticular area, perhaps even in the synovial sheaths, which broke through the weakened and partly damaged tissues.

ABSTRACTS

[ANTHRAX IN PIGS FROM INFECTED FOOD. GAITANDJIEFF, G. (1939.) *Tierärztl. Rdsch.* **45.** 620-621.]

Experimental attempts to infect swine with anthrax bacilli by injection and feeding have often proved unsuccessful and this species, especially young animals, is generally regarded as relatively resistant to the disease. This view is supported by the not infrequent finding of cases of localised infection of the throat of pigs slaughtered for food. It is generally accepted that the source of infection is bone or other meal contaminated with anthrax spores; this was supported by the striking fall in the incidence of anthrax in pigs in Germany from 2,705 cases in 1914 to 30 in 1918! In the post-war years the incidence has risen considerably with the increased importation of feeding stuffs.

The author of this paper describes in detail a serious outbreak of anthrax among a herd of 145 pigs kept at a sanatorium in the neighbourhood of Sofia (Bulgaria). Swine fever was suspected by the farm staff but no typical lesions were found *post-mortem*. Four adult pigs died and one large pig and eight piglets were ill. The symptoms and *post-mortem* lesions were typical of anthrax as usually encountered in the pig. The rectal temperature of affected animals varied from 102° to 104° F. Enquiry elicited the information that several days previously two calves in a nearby stall died of anthrax and the flesh had been steamed and fed to all the pigs. Two days later all the pigs were sick and most of them showed a swelling in the neck region. Four adult pigs had died before veterinary advice was sought. The eight piglets which were found ill eventually recovered.

E. G. W.

[TREATMENT OF INFLUENZAL ARTHRITIS IN PIGS WITH M & B 693. Shanks, P. L. (1939.) *Vet. J.* **95**. 429.]

An arthritic condition in pigs associated with an organism resembling *H. influenzae suis* has been treated with injections of Soluseptasine (M & B) and Proseptasine, and with tablets of M & B 693. Prior to the use of these drugs, treatment of this joint condition had been very unsatisfactory; such treatment apparently consisted in painting the joints with iodine, use of salicylates and giving Epsom salts in bran mashes, etc. The mortality was about 75 per cent. Animals treated by injections of 30 c.c. of a 20 per cent. soluseptasine (M & B) solution made a rapid recovery. Animals treated with 1·5 grammes of proseptasine orally, the dose being repeated three times daily, also made good recoveries. Tablets of M & B 693, being much cheaper, were then tried, and following a dose of one tablet three times daily, complete recovery occurred. The more acute the attack appeared to be the more spectacular was the result.

D. J. A.

* * * * *

[BOVINE MASTITIS: NOTES ON INCIDENCE, AETIOLOGY AND DIAGNOSIS. Gwatkin, R., Hadwen, S., and Legard, H. M. *Canad. J. comp. Med.* **1**. 3, 7-16.]

A report is given of the results of the clinical examination of 594 cows from herds scattered over a wide area. The milk from each animal was submitted to brom-thymol-blue and rennet tests, and to microscopic and biological examination. Mastitis was found in 39 per cent. of cases, and a further 9·6 per cent. were regarded as suspicious; of these 156 were streptococcus infection, 50 staphylococcus and three *B. pyogenes*. The brom-thymol-blue and rennet tests combined failed to detect 25·5 per cent. of cases, while clinical examination alone failed in 20·7 per cent. Eleven cows with indurated mammary glands appeared normal by all other tests. The percentage of infection in primiparae was 10·4, compared with 37·5 in older animals, and 31·7 per cent. of cases were affected in all quarters. Ten cases of infection due to organisms of the colon—*aerogenes* group—were encountered. All were acute and six terminated fatally.

D. D. O.

* * * * *

[PARTURIENT HAEMOGLOBINAEMIA OF DAIRY COWS. (1939.) Madsen, D. E., and Nielsen, H. M. *J. Amer. vet. Med. Assoc.* **94**. 577-586. (2 plates, 2 tabs. 16 refs.).]

Parturient haemoglobinaemia is a disease of high-producing dairy cows characterised by anaemia, haemoglobinuria and general weakness. It usually occurs two to three weeks after calving. The disease is most common in the inter-mountain states of the U.S.A., and has been recorded in Scandinavia, Austria, Ireland and Scotland. The condition may affect several members of a herd, and in the author's experience particularly in those herds where sugar beet by-products are included in the ration. It is more prevalent in the winter months when the cows are stalled. Third to sixth calvers are usually affected.

One of the first noticeable symptoms is the haemoglobinuria. As the disease progresses, the heart beat becomes so forceful as to be audible some feet away from the animal. The visible mucous membranes are anaemic and later become icteric. There is extreme weakness. Recovery usually commences in about five days following the first appearance of symptoms. The pronounced anaemia may so affect the circulation of the extremities that frost bite of the feet, ears and tail may occur in cold weather. Icterus and degeneration of the liver are the most constant lesions to be found on autopsy. There is a pronounced destruction of red blood corpuscles. The average size of the red cells is increased and there is some evidence of regeneration in that a proportion of the red blood corpuscles show stippling and the number of normoblasts is increased for about 15 days. The author found the inorganic phosphorus values of the blood plasma to be very low. (Treatment with phosphorus elements is to be reported later.) No bacteriological, protozoological or toxic cause could be demonstrated.

D. L. H.

* * * * *

[ACCIDENTAL CANINE THALLOTOXICOSIS AND DANGERS OF THALLIUM USED AS A RODENTICIDAL AGENT. Larson, C. P., Keller, W. N. O., and Manges, J. D. (1939.) *J. Amer. Vet. Med. Ass.* **95**. 486.

A case report on two dogs which died from acute thallium poisoning after consumption of thallium sulphate which had been used as a rodenticide in salmon or beef bait. The animals lived for four and eight days respectively. The first symptoms observed were continuous vomiting, abdominal pain, restlessness, general malaise and extreme thirst. Then followed an elevation of temperature, increased pulse and respiratory rate, with generalised weakness and paralysis of the muscles of the head and neck. A few days later epilation occurred round the base of the ears, scrotum, ankle and knee joints. This was followed by ulceration of the skin in the same region and ulcerative stomatitis. Then symptoms of cerebral involvement appeared such as twitchings, delirium and finally convulsions and death.

Post-mortem examination confirmed the epilation in various regions in underlying ulceration. The whole gastro-intestinal tract was inflamed, with ulceration and petechial haemorrhages in the stomach and small intestines. The spleen was markedly enlarged and very dark red in colour. The lungs showed patches of bronchopneumonia whilst degenerative changes were noted in the heart, liver, kidneys, pancreas, adrenals and testicles. The central nervous system showed numerous petechial haemorrhages and foci of recent softening with perivascular cuffs of exudate—closely resembling the condition brought about by other metallic poisons such as arsenic.

A. R.

* * * * *

[SODIUM CHLORATE POISONING. McCulloch, E. C., and Murer, H. K. (1939.) *J. Amer. Vet. Med. Ass.* **95**. 753, 675-682.]

Large quantities of sodium chlorate are used yearly to control weeds, and there is a danger of chlorate poisoning occurring in animals. The literature on chlorate poisoning is reviewed. The approximate lethal doses for animals are: horse, 250 grammes; cow, 500 grammes; sheep, 100 grammes; dog, 60 grammes. In their experiments the authors

confirm the dose for the sheep and find the lethal dose for chickens to be 5 mg. per gramme bodyweight.

In sheep, the symptoms of acute sodium chlorate poisoning are somnolence and dyspnoea, the temperature remaining normal. Death occurs during stupor without convulsions. Autopsy reveals darkened flesh, almost black in some cases; cut surfaces become lighter on exposure to the air—the blood is black but coagulates readily, the colour being due to the formation of methaemoglobin. The liver is nearly black; the lungs are the colour of normal liver; the spleen is dark but normal in size and the pulp of normal firmness; the mucosa of the abomasum and duodenum shows deep dark eroded areas; the rest of the alimentary tract is normal.

Diagnosis depends on symptoms, *post-mortem* findings and a history of possible exposure; it has not been found possible to detect chlorate in the body after death as it is rapidly destroyed in the animal. The methaemoglobin is most readily recognised by haemolysing the blood with an equal volume of water. Oral doses of chlorate as small as 10 grammes will produce a slight darkening of the blood in sheep.

No successful antidote was found; reducing agents—sodium thiosulphate, sodium galacturonate, calcium gluconate—had no beneficial effect either orally or intravenously; dilute solutions of sodium carbonate were of little value.

A sheep was tethered in measured areas of a heavy growth of bindweed which had been sprayed with 5 lbs. of chlorate per square rod; there were no symptoms and no darkening of the blood was noted. The extent of lesions produced by frequent sublethal doses is unknown.

Three cases of poisoning are described in range cattle and sheep on pasture which had been treated with chlorate to destroy Canada thistle. In one case large undissolved crystals of chlorate were found in the pasture.

If the recommended amounts and procedures are used, it is doubtful if the resulting foliage would cause death from chlorate poisoning. It is recommended that the following precautions be taken: mineral licks should be provided for the animals, all the chlorate must be in solution and not more than 5 lbs. per square rod applied; chlorate containers should be placed out of the reach of cattle.

It is possible that the sprayed Canada thistle is toxic, and certain poisonous but otherwise unpalatable plants may be rendered attractive to the animals by spraying. A. T. C.

SUFFOLK HORSE SOCIETY

Sir Cuthbert Quilter, presiding at the annual meeting of the Suffolk Horse Society, said that although the usual shows could not go on he thought it was desirable that the stallion shows should continue, as well as the Woodbridge Show. It was gratifying to know that notwithstanding big monetary grants by the Suffolk Horse Society, totalling just on £500 to shows in all parts of the country, it has been possible to finish the year with a favourable balance.

Sir Cuthbert said the action of the Government in withholding the grants to the Heavy Horse Societies came as a shock to those who were dependent on Government financial assistance for the hiring of their stallions. There was no doubt horses of the Suffolk type would be wanted both for farm and haulage work, and he therefore advised all owners of Suffolk mares to breed as many foals as they possibly could.

REPORT

[**CYPRUS.** Annual Report of the Veterinary Service, 1938.]

The Veterinary Service is responsible for the control of contagious disease, the inspection of livestock prior to export, the quarantine control of imported animals, the registration and inspection of dairies and cowsheds, the supervision of meat inspection in the principal towns and health resorts, the licensing of stallions under the Horse Breeding Law and veterinary attendance on police horses and Government-owned livestock. Assistance is given to the Animal Husbandry branch in the selection and supervision of breeding stock and in many other ways. Advice is also given to stock-owners with regard to the housing, feeding, breeding and general management of their animals.

Except for insect and helminth parasites the colony is a healthy one for livestock. There is no tuberculosis, bovine contagious abortion, foot-and-mouth disease, swine fever and none of the major tropical diseases that are present in neighbouring countries in the east and south of the island. Anthrax used to be the principal disease but annual vaccination of practically the entire livestock of the Colony has reduced its incidence to negligible proportions. W. K.

REVIEW

[**POULTRY PRACTICE. A COLLECTION OF DISCUSSIONS ON POULTRY DISEASES AND RELATED SUBJECTS.** L. D. Bushnell and others. Veterinary Magazine Corporation, 7632, South Crandon Ave., Chicago, Illinois. Price: 1 dollar.]

This volume of 160 pages consists of articles reprinted from the American Veterinary periodical—*Veterinary Medicine*. Each of the 34 articles deals with a different subject, embracing practically all the aspects of poultry health and disease. The opening article—the challenge of poultry mortality to the veterinary profession—shows clearly how the welfare of the poultry industry is closely related to the health of the poultry and how, in turn, the veterinary surgeon must hold himself responsible for the advising of those engaged in the industry. Stress is laid on the relationship between the laboratory and the field. It is significant of the importance attached to research work that a Regional Poultry Research Laboratory has been set up "to co-operate with and co-ordinate the efforts" of 25 different states. We recognise as authors of the various articles, the names of men whose work, sometimes entirely confined to diseases of poultry or to some aspect concerning the health of poultry, is known throughout the world. The volume is well illustrated. It is brimful of information arranged by such a method that, with a minimum of search, most points concerning any specific disease can be ascertained. For those who desire fuller information on any of the subjects considered in the articles, there is usually a fairly comprehensive reference list. It is a long time since there appeared such a concise little book in which there is so much matter of vital interest to veterinary surgeons in general and the veterinary practitioner in particular. Although the book deals with poultry health and disease pertaining to America, it can be confidently recommended to veterinary surgeons in this country as an addition to their library on the subject of poultry.

N.V.M.A. DIVISIONAL REPORT

CENTRAL VETERINARY SOCIETY

Proceedings in Parliament bear witness almost daily to the importance of the pig in our war-time national economy, and it was timely that the Central Veterinary Society should supplement the interest aroused in the diseases of this animal by Professor Manninger's paper to Congress at Yarmouth by securing a further contribution on the subject from a resident in East Anglia—the area where those disorders have been causing the greatest degree of concern. The subject of Mr. B. A. Claxton's paper was "The differential diagnosis of acute febrile diseases of the pig," and it furnished a full and interesting afternoon's discussion at a meeting of the Central Veterinary Society, held at the Royal Veterinary College on February 1st, 1940.

The President (Mr. H. E. Bywater) occupied the Chair, and there were also present Messrs. R. Bennett, W. Brown, H. Scott Dunn, Miss C. M. Ford, Mr. J. Francis, Dr. Tom Hare, Mr. S. F. J. Hodgman, Mr. J. W. H. Holmes (Hon. Secretary), Major H. Kirk, Messrs. H. D. Land, H. T. Matthews, E. F. McCleery, Dr. R. F. Montgomerie, Mr. R. W. Roach, Dr. A. W. Stableforth, Messrs. G. M. Vincent, W. J. B. Watson, J. D. Williams, A. N. Worden and Dr. W. R. Wooldridge. Messrs. B. A. Claxton, D. A. Craddock, R. O. Muir, Miss J. O. Joshua, Dr. G. Slavin, and Mr. J. B. Tutt were present as visitors.

The minutes of the October meeting; also of the December meeting, having been published in the *Veterinary Record*, were taken as read and were signed as correct.

Correspondence.—(1) From the following Fellows apologising for their inability to attend the meeting: Mr. C. Formston, Major Glyn Lloyd, Dr. J. McCunn, Mr. J. W. McIntosh, Brigadier C. A. Murray, Mr. W. Perryman, Mr. N. J. Scorgie, Professor J. G. Wright and Professor G. H. Wooldridge.

(2) From Dr. F. C. Minett saying that he was under the impression that before leaving England for India, he had made a request that his membership of the Society should terminate. The Honorary Secretary pointed out that, under Rule 10, Fellows residing abroad for a time should cease to be liable for the payment of their subscription for such period. They all hoped that Dr. Minett would return within the area of the Society after a few years. The PRESIDENT said that he was sure that it would be their wish that the Secretary should write to Dr. Minett drawing his attention to this rule, expressing the hope that he would retain his membership and sending him the good wishes of the Society for his work in his important new sphere. (Applause.)

Elections.—Miss D. H. Craddock, of Loughton (proposed by Mr. Holmes; seconded by Dr. McCunn), and Mr. J. B. Tutt of the Royal Veterinary College (proposed by Mr. J. F. D. Tutt, seconded by Mr. J. B. Tutt, Sen.) were unanimously elected Fellows of the Society.

The PRESIDENT, speaking in reference to Mr. Tutt's election, said that, as he pointed out when the nomination was made at the last meeting, this represented an election unique in the history of the Society inasmuch as Mr. Tutt was proposed by his father and seconded by his grandfather; thus, by Mr. Tutt's election they had three generations of veterinary surgeons in one family as Fellows of the Society. (Applause.)

Morbid Specimens and Case Records

Mr. J. D. WILLIAMS had three interesting cases to report. He first exhibited a cystic ovary which he had removed from a three-months-old kitten. He had brought this for their inspection because it was very large and somewhat unexpected; in fact, when first he saw the cyst he thought the kitten was pregnant.

The subject of the next case he had to report was a twelve-year-old cross-bred Irish terrier, suffering from a very large suppurating melanoma between the middle toes of the left fore foot, spreading the toes. He was reluctant to operate owing to the extent of the neoplasm and considerable loss of skin, which would render suturing impossible. Something had to be done, however, and the growth was removed as aseptically as possible under nembutal. The whole of the skin of the inner surface, right up to the web and down to the pads was removed. A few silk sutures were put in at the apex of the wound, which was then bandaged. The result was very gratifying as the inner surfaces of the toes held together almost immediately. The dog had the two toes joined together but was not in the least degree lame.

His third case was one of tuberculosis in the dog. The subject was a cocker spaniel aged two to three years and weighing 32 lb. The outstanding feature of this case was great enlargement of the limbs; both stifles were enormous, the hind limbs then thinning down to very enlarged hocks and metatarsals. The elbows were apparently normal, but the carpus was much enlarged. Emaciation was very marked. There was very severe haemorrhage, apparently from the lungs, and the membranes were very pallid.

The dog was destroyed and a *post-mortem* examination made. All the lesions were apparently confined to the chest; the lungs were in a terrible condition, being full of nodules, with the pleura covered with nodules like a miniature variety of "grapes" in the cow. The remarkable feature of the case was the amazing energy and vitality of the dog even towards the end.

Major HAMILTON KIRK said that he thought most of them looked upon the inter-digital cyst of the dog as almost an incurable condition. He had time after time had dogs brought to him which had had these cysts removed surgically or which had been treated by injections or by other means, and nothing had been of any avail. He had had some success with what was known as a vitamin concentrate which was sent to him for trial and on the use of which he embarked without any faith whatsoever. He had, however, given it to clients to administer when they had reported the cysts, and they had told him afterwards that the latter had not recurred. He had now reached his fifth successive case of non-recurrence; a case which he thought definitely to be incurable. He did venture, therefore, to recommend the trial of this vitamin concentrate in that most intractable condition.

Mr. J. B. TUTT reported a case of a dog which was stated by the owner to have swallowed some ball bearings. The only history was that the animal had vomited slightly, that it displayed great uneasiness and that it rattled when it walked. On examination, he could feel nothing in the dog's stomach—but

the animal certainly rattled when he shook it. (Laughter.) He anaesthetised the dog and performed gastrotomy, removing eight ball-bearings from the stomach; they weighed 1¾ oz. The difficulty was to get them out, and most of them were removed with a spoon. They took the skin sutures out on the seventh day and the dog went home on the ninth day.

Discussion

The President, having invited discussion of these case reports, the Hon. Secretary, speaking in reference to Mr. Williams's case of tuberculosis in the dog, reminded members that he had in conjunction with Professor Wooldridge, in 1937, recorded a case of "Pulmonary Tuberculosis in the Dog with complications involving the limbs." This had many features in common with Mr. Williams's case. The animal reacted to the subcutaneous tuberculin test and at the same time showed pain in the limbs. The diagnosis was confirmed at *post-mortem* by microscopical examination.

The Secretary asked if the tumour from the foot had been submitted for pathological examination and also what interval of time had elapsed from the date of operation.

In reply to the Hon. Secretary, Mr. Williams said that the tumour, in his second case, was suppurating slightly on the upper surface. He did not think there would be a recurrence; it appeared to him to be definitely a melanoma and the animal had been free for about a month so far.

In reply to the Hon. Secretary, Major Kirk said that despite complete removal he had found inter-digital cysts invariably recur—unfortunately, not always in the same place. Therefore, he thought it well to give a trial to the preparation to which he had referred; the cysts disappeared in three weeks and, after a period of 18 months, there had been no recurrence.

Mr. Scott Dunn expressed the opinion that tuberculosis in the dog was much more frequent than was commonly believed; he, himself, had seen quite a number of cases. A recent case was a 16-months-old spaniel, which had been under observation with a cough. At first he thought the whole trouble was due to worms. The dog persisted in coughing and lost weight. It was decided to apply the tuberculin test and Dr. Hare kindly sent down a supply. It was carried out by his assistant, Miss A. Abrams, M.R.C.V.S., and the temperature rose from normal to 105. The dog was painlessly destroyed and it was found that it had tuberculosis affecting one lung.

Dr. Tom Hare thanked Mr. Williams for his interesting specimen from the kitten. What he had to say was obviously subject to a detailed dissection afterwards, but he thought the specimen was a cyst of the vestigial remains of the Müllerian duct. The ovary was lying on the surface of the cyst. Perhaps Mr. Williams would present it to Dr. Amoroso. (Mr. Williams expressed his readiness to do this.) There was evidence in the literature which suggested that these Müllerian cysts were familial and possibly inherited.

The President, speaking in reference to the discussion on Major Kirk's treatment of inter-digital cysts, said that he did not know whether the members had any experience of an old method of treatment which he, personally, had used many years ago with some success. It was purely empirical. It consisted of drawing off the fluid from the unruptured cyst, as aseptically as possible, and injecting it subcutaneously immediately afterwards. At one time he attended the animals of poor persons at an R.S.P.C.A. clinic, and he found this a very cheap method which yielded good results.

Dr. Hare thought that the Society could have quite a good discussion on the lesions of the feet of dogs. There were two types of cyst of the foot. There was the so-called inter-digital cyst which appeared on the dorsal surface of the inter-digital space, developed rapidly without any previous evidence of inflammation, and caused the patient irritation and sometimes most acute distress. It contained a water-clear fluid but was not of bacterial or viral origin; its cause was unknown. Repeated experiments by a number of pathologists had failed to reproduce the cysts on inoculation of the cyst-contents into healthy puppies. The inter-digital cyst tended to recur and the dog might continue to put up crops of such lesions throughout its life. But there was another very important cyst-like lesion with which the classical inter-digital cyst was frequently confused; *viz.*, the small focus of inflammation which became a vesicle and was due to the *β-haemolytic streptococcus*. The vesicle arose at the junction of the hairy with the non-hairy skin usually on the volar surface, sometimes on the lateral surface of the digit, and infrequently on the posterior surface of the foot. Thus confusion arose when this haemolytic streptococcus vesicle appeared on the lateral surface and particularly when it was on one of the lateral surfaces opposing another digit, so that it actually appeared in the inter-digital space. Treatment was entirely different for each of the two lesions. From the latter type of lesion the *β-haemolytic streptococcus* usually was obtained on culture of the cyst contents; in his (Dr. Hare's) experience the streptococcus usually proved to be group G or group C; then followed treatment with autogenous vaccine. The haemolytic streptococcal vesicle of the foot might occur as an isolated lesion but, as a rule, it was accompanied by other clinical evidence of the *β-haemolytic streptococcus* infection. He had had several cases of this vesicle associated with acute catarrh which had been diagnosed as the early stage of distemper.

Dr. R. F. Montgomerie said since tuberculin testing of the dog had been mentioned he would like, with the President's permission, to initiate a short discussion on this question. His experience was very limited, but he hoped others would describe their experience. He could recall a case in which the subcutaneous test was positive, but apparently led to the collapse of the patient about 12 hours after the injection of the tuberculin. He wondered how far the intradermal test had been used in canine practice.

In reply to a question as to the procedure in the application of the test, Mr. Scott Dunn said that he would suggest to the distinguished pathologists who were issuing tuberculin for use in the dog that they might send some directions with it. Some years ago his friend, Dr. McCunn, informed him that 1 c.c. should be injected subcutaneously and the temperature recorded every hour. Dr. McCunn could tell them that there was no difficulty in diagnosing clinical tuberculosis in the dog, and he, the speaker, was inclined to agree with him.

The Honorary Secretary stated that they applied the tuberculin test to dogs, at the College, probably

two or three times every year, and they found that the only test worth while doing was the subcutaneous. It was necessary to give a large dose of tuberculin—½ to 1 c.c.; also, to take the temperature every hour for 12 hours. Usually in positive cases the maximum temperature occurred about the seventh hour, but it was well up beyond its initial starting point at the end of 12 hours in such a case. They had had some cases brought along which had gone up to 103° and which had a chronic cough, which did not turn out to be tuberculosis. In typical cases one got the temperature going up to 104 to 105°. The intradermal test had given him only one positive result that was satisfactory: in most of the places of injection there had been a local necrosis of the skin which spoilt the test.

Dr. Tom Hare observed that the late Mr. Henry Gray had pointed out ten or twelve years ago that the subcutaneous was the only satisfactory test for tuberculosis in the dog, and that the intradermal was not only inconstant but difficult to apply. He (Dr. Hare) had cases of chronic tonsillitis and adenitis, due to the *β-haemolytic streptococcus*, emaciated owing to the difficulty in swallowing food, which had been suspected of being tuberculous. These dogs had been tested by the subcutaneous method and had given the indefinite reaction spoken of by the Hon. Secretary. Subsequent bacteriological examination showed them to be suffering from the *β-haemolytic streptococcus* infection and not from tuberculosis.

Dr. Stableforth speaking in reference to the question of tuberculosis in the dog and its diagnosis, drew the attention of members to the paper "Tuberculosis in the Dog," presented to the Central Veterinary Society by Mr. A. R. Smythe, on May 7th, 1936, and published in the *Veterinary Record* of June 20th of that year. Smythe came to the conclusion that the subcutaneous test was the only one of any service. He could not add any information to that given by Dr. Hare in regard to those cross-allergic reactions.

Mr. J. K. Bateman said that his experience suggested that a greyhound which did not respond to any test should not be killed as suspected tuberculosis unless pleuritis be present. Pleuritis was the usual form of tuberculosis among greyhounds and he had met with both human and bovine types. The human type had generally proved to be more active than the bovine type and produced larger quantities of fluid.

Intradermal and ophthalmic tests had both proved useless, but there was always time to reach a definite diagnosis if pleuritic fluid was taken and sent for animal inoculation.

Dr. Montgomerie observed that the reason he had introduced the question of the intradermal test was because he had had just enough experience to realise that the subcutaneous test was not altogether reliable in the dog. This appeared to be in keeping with the observations of others, but he was surprised to hear it said that the intradermal test was very difficult to apply in the dog. Since intradermal injections, including tuberculin tests, were common practice in such animals as the guinea-pig, he failed to understand why there should be any difficulty in making an intradermal injection in the dog. The Hon. Secretary had mentioned his experience of this test and said that all he got was necrosis at the site of injection. Might it not be that this necrosis was the evidence of a positive reaction? In guinea-pig testing, the tuberculin was commonly used at dilutions of 1–500 and 1–100, but at greater strengths necrosis was a prominent feature of the reaction and it might be that Mr. Holmes, using concentrated tuberculin in the dog, got this same type of reaction.

The President thanked the members who had contributed to the clinical discussion, observing, amid applause, that this item formed by no means the least interesting feature of their meetings. He now called upon Mr. Claxton to present his paper.

Paper.—Mr. B. A. Claxton, M.R.C.V.S., now presented his paper, "The differential diagnosis of acute febrile diseases of the pig," the discussion upon which was opened by Dr. Tom Hare and very well sustained.

The President, speaking before the discussion was opened, said that he would like to take the opportunity for thanking Mr. Claxton for coming there that afternoon and having prepared the paper: he knew that he had had a long and arduous journey that day and had been very busy during the last few months. Not the least valuable feature would be the publication of Mr. Claxton's communication in the *Veterinary Record*, when he was sure it would form a very useful addition to our literature on diseases of the pig. (Hear, hear.)

[Mr. Claxton's paper is reproduced, together with the report of the ensuing discussion, at the commencement of this issue of the *Record*.—Editor.]

At the termination of Mr. Claxton's reply to the discussion, he was accorded a hearty vote of thanks on the call of the President, and the meeting closed with a similar tribute to the latter for his conduct of the proceedings. J. W. H. Holmes, *Hon. Secretary*.

IN PARLIAMENT

Food and Feeding-Stuffs Supplies

With the House of Commons in Committee of Supply on March 13th, and in the course of debate on the (War Finance) Vote of Credit for £700,000,000, Mr. T. Williams said that the question of food supplies had been lifted, at long last, to the position of a first-class subject. Yet there was no real enthusiasm for the ploughing-up campaign and they were not at all satisfied with the Government's policy. It was a scandal that the landlord still retained the privilege of preventing the tenant farmer from making the maximum use of his land in war-time. Another thing militating against the land campaign was the scarcity of seed. It was of no use ploughing up land unless the farmers were guaranteed that the seed would be there. The shortage of feeding stuffs since the beginning of the war had been infinitely more destructive to our food supplies than the U-boat campaign. The Ministry of Food had made a mess of the meat scheme. He had a letter which stated that the Minister's extravagance was a far bigger danger to this country than Hitler. That was perhaps not quite correct, but there was something in the statement of extravagance.

"Every hon. Member knows," proceeded Mr. Williams, "through his own correspondence that there never was a bigger muddle than the feeding stuff muddle of the last few months. The Secretary of State for War, speaking yesterday, said that twelve months ago if conflict was not inevitable it was dangerously near, and yet the Government, apparently, did nothing about it. It is true that they were supposed to have started their preparations for war, but did they prepare in the matter of feeding stuffs not only to help our shipping and our Navy, but to help our farmers to maintain their livestock? I do not need to quote half-a-dozen cases; one will be enough. Here is a case from Scotland about which the Minister of Food already knows. A farmer bought a

farm in 1926 and erected modern buildings, his intention being to keep 750 pigs. He let the major portion of his land for grazing. In September last year he had 700 pigs, and his weekly consumption of balanced meal was 3½ tons. In December, without any notice at all, that 3½ tons was reduced to 10 cwt. per week. What could the man do with 700 pigs? He had to take 450 immature pigs to the slaughterhouse. The bank immediately learned of this and made him sign a trust deed, and that man who was feeding 700 pigs in September last year has now signed on at the Employment Exchange. That is an instance of what has happened as a result of this feeding stuffs muddle, for which all the Ministers are responsible to some extent. It is destroying the confidence, not only of poultry dealers, sheep farmers and pig producers, but of the rest of the community; and that case can be multiplied thousands of times.

"I do not want to say too much about cereal control, but let me say this: I hope the Minister of Food will take note of it. At the head of every cereal control in this country the right hon. Gentleman, or those acting on his behalf, has established at the head the highest figure in some vested interest, and the farmer and the consumer to-day get very secondary consideration. Unless these controls are to be examined and their work carefully gone over, unless some confidence is restored to farmers, this campaign is not going to be a success. What we suggest, and nothing short of it will accomplish the object, is that the Government should not only control the mixtures but insist upon the right mixtures. You cannot buy one mixture this week and another mixture the next. Cattle do not like their food disturbed; they do not fatten and do themselves justice. The Ministry generally must have absolute control over the mixtures, control over the prices, must insist that the maximum price orders are observed, and also insist on a fair and equitable distribution to the various sections of the farming community. Livestock is infinitely more important than grass. We cannot afford to lose any time by leaving this thing in the hands of vested interests of any sort."

There was a lack of driving force, and we were hampered on all sides by vested interests. We could not grow corn either on paper, on the wireless, or on the films. Unless there was action, and more action, the Government's agricultural campaign would not succeed.

Mr. Lloyd George said he agreed that all was not well with the food production campaign. There was no confidence behind the scheme, such as it was. Could not the Minister stir up somebody under his control and get an immediate decision on feeding stuffs? Every pledge the right hon. Gentleman had given hitherto had completely broken down. The Government had not realised even now the vital importance of increased food production on an unprecedented scale as an essential part of winning the war. If he were in the position of the Minister of Agriculture he would be satisfied with nothing less than the doubling of the food production effort in this country. That was a minimum to begin with. The policy of too late and too little had been pursued in regard to Czechoslovakia, Poland, and Finland, and that was the road to disaster. It was the same in regard to our food policy.

He urged the Lord Privy Seal to tell the House what he intended to do to put that matter right before we found ourselves face to face with catastrophe. He hoped the right hon. Gentleman would let the farmer know that if he doubled his production he would be provided with a guaranteed market for his products. Secondly, the price paid must cover the cost of production. The State must also subsidise liberally well-thought-out schemes of drainage, whether arterial or field drainage. The State should also take active measures to see that there was an ample supply of lime and fertilisers for the soil. Cheap capital should also be made available for all that was necessary to enable the cultivator to bring the soil to the highest pitch of fertility, not only by drainage and fertilisation but by machinery, livestock and otherwise. There must also be an adequate labour supply.

Sir S. Hoare's Reply

Sir S. Hoare, Lord Privy Seal (replying) said that taking the food position as a whole he was glad to be able to say that it was now substantially better than it was last September. Stocks of food, for the people, in this country, were better in every essential respect. Wheat and flour reserves in mills and public warehouses were greater than at the outbreak of war. The same applied to meat, frozen and canned, and to tinned salmon. Stocks of bacon, ham and butter were very high. The quantity of imported meat in hand was remarkably higher. There were very large stocks of whale oil, which was used in the manufacture of margarine. Dried and canned fruits were stored in abundance. The contribution of the Empire countries towards supplying us with food stuffs had been on a very large scale. In spite of submarines and mines the Empire's highways had been kept open.

With regard to feeding stuffs he had to admit that he had nothing like such a good picture to lay before the Committee. He was inclined to think that distribution had worked out unfairly in some parts of the country, and at present the question of rationing feeding stuffs was being carefully considered. He would be glad to see some further control introduced if it was found to be practicable. Rationing was not a sign of shortage; it was one of the essentials of war. There was no excuse for extravagance in the use of food or any other commodity, and with regard to waste, of which the Government was cognizant, the collection of scrap ought now to be more efficiently carried out than was the case previously.

Imported Food Stuffs

There was the great field of imported food stuffs, which before the war amounted to almost half of our total imports—more than 20,000,000 tons a year. In this field, if we were to make our 100 per cent. war effort, we must make drastic economies. Cuts had to be made stage by stage. These great cuts could not be made unless there was greater stimulation to home production.

The ploughing programme of a minimum of 2,000,000 acres was an essential part of the wider programme of cutting down foreign imports, food stuffs, and unnecessary commodities wherever possible and freeing ourselves for a greater war effort in munitions and raw materials. He hoped he had said enough to convince hon. Members that the Government were attempting to face the hard problems on which action had to be taken quickly. This was to be the first chapter, perhaps the biggest chapter of its kind ever undertaken. They put the programme of 2,000,000 acres as their objective, because it was about as much as the agricultural industry could do in the circumstances of to-day. If we got more than that, the better it would be.

Sir R. Glyn said that those who believed that the prosperity of the land was the basis of a happy nation had seen under every Government since the last war the selfishness of democracy and vote-catching ruining the land. Every one in every party was guilty. The only thing to do was to give back confidence to the farming community. That would not be done by phrases such as the Lord Privy Seal had used, but by a statement that for four years after the conclusion of peace there would be a continuance of this policy.

Mr. Alexander thought the Lord Privy Seal's optimism hardly justified. He added: "There will be other people besides those who use cereals for direct human food who will be asking, 'If the Minister of Food says there is a great improvement in wheat and flour stocks, how is it that we have had to kill millions of poultry because we could not feed them?' If it has been possible to improve the stocks in spite of the shortage, why have the poultry farmers been kept so short? We should like a little more explanation about what the real situation is."

Mr. W. S. Morrison, who also replied for the Government, claimed that from the ports there had been released

the 66 per cent. of the average pre-war monthly consumption of feeding stuffs, as promised by the Government. Distribution, however, was a very different thing: the trade was an extremely complicated one. "But," continued Mr. Morrison, "I think there have been improvements in regard to the imported products. One is the requirement from the merchants of returns as to their pre-war business, and the possibility of inspection of their books to ensure that. As far as may be they are giving the right proportions to their customers. There is also this to be said. The 66 per cent. refers to the total import of feeding stuffs. It is not to be deduced from that however that every farmer will in every case get 66 per cent. of any particular sort of feeding stuffs and it is a matter of high policy that what is available must be utilised."

Mr. Quibell: "The division of the year into twelve equal periods, in respect of which 66 per cent. of feeding stuffs is allocated is unfair, because a bigger percentage of feeding stuffs is used from November to March. Consequently the allocation is not on a fair average, having regard to the additional quantities of feeding stuffs required in the winter months of the year."

Mr. Morrison: "I appreciate the hon. Member's point. It is true that at this season of the year there is a heavier consumption of feeding stuffs than there is normally. But this 66 per cent. is a fraction chosen on the best information I can get. Taking into account the cold weather, the figure is more likely to be 58 per cent. than 66 per cent., but we have not accurate figures for each month. With this licensing and the new control scheme, I believe we shall get better results in distribution, but the general import position still remains. The hon. Member for Don Valley and the right hon. Gentleman the Member for Carnarvon Boroughs unite in saying that we must economise in the shipping used for carrying food. When I tell the Committee that of the 20,000,000 tons that have been mentioned, the bulk is employed in carrying cereals, the bulkiest and most difficult thing to export, which makes the largest possible call upon shipping space, we must see where we can save. It is obvious that this large bulk of cereals must make its contribution. It is equally obvious that the bread supply of the people must be maintained, and therefore it is necessary for us to look at the position and see if we can economise shipping and yet provide the full quota of feeding stuffs.

"We are faced with the position of asking which is the most useful type of farming from the nation's point of view in time of war. Is it that of the man who relies entirely upon imported feeding stuffs for his business and who buys from overseas, or is it that of the man who is able to reinforce from the produce of his own soil the feeding stuffs that he requires? It is right to ask from a strictly war-time point of view where the shoe pinches? We have not taken that hard view of it. Realising the hardship to many employed in this form of agriculture we have tried to mitigate it."

Mr. T. Williams: "Surely the right hon. Gentleman will understand that it is just as important to preserve livestock as it is to preserve food, otherwise we shall be taking everything out of the land by growing wheat and there will be nothing left."

Mr. Morrison: "I agree with that, and we are maintaining our livestock which is ancillary to the other. I want hon. Members to ask themselves again what type of farming is best in war-time. I think as regards the pig the answer must be that the pre-war pig which was fed in peace-time on balanced rations must transform himself—as human beings have to do in war-time—and must become a war-time pig, omnivorously seeking his food in perhaps less tastefully got up quarters in order to contribute to victory. There is one thing about feeding stuffs which I should say. We were forced during the difficult time to limit to one-third the amount of home-grown wheat that could be released. Now that the position has improved we have been able to release one-half and I think that should have an effect in easing the situation.

"Meat control is another matter on which I would appeal for a realistic approach to the question. A great number of rumours go about and it is difficult sometimes to check their accuracy. One frequently hears it said that animals are sent from Llandrindod to Somerset and so on. I would ask hon. Members to think of the useless movement of animals that takes place in peace-time, of the dealer on the spot hoping for a bargain who transports an animal perhaps 100 miles in the hope of obtaining a penny for himself. Under this scheme farmers bring their animals to a centre, which is a great saving in transport. I remember being asked a question about some meat that had gone bad in the Midlands. On inquiry I found the source of that complaint to be a propaganda leaflet issued by a road transport concern to show that the railways were incompetent. It is inevitable in dealing with these things that we must annoy many vested interests. Though I would be as gentle as possible with them it is impossible to avoid giving pain to some people. I would ask hon. Members when they hear complaints to try to verify them and not to credit every rumour that is bruited about.

"With regard to the question of stocks, as my right hon. Friend the Lord Privy Seal said, the position has improved. We have sometimes to restrict the consumption of one particular article or another, and one of our objects has been that of building up reserves against what might happen later. The position has improved. The right hon. Gentleman opposite will not ask me to go into figures, of course, but he asked me one question which I think I should answer because it is a perfectly reasonable one. He asked me whether if we had overtaken all the consumption of stocks which took place at the end of last year, and, if we were now in a better position, how it was that poultry in some cases had had to go short? One of the answers to that question is that there has been a restriction of supply of animal feeding stuffs, but the damage that has been done has been repaired and the country is now back in the position in which it was before. One has to make priorities of what can be imported, as the right hon. Gentleman will realise."

. . . . .

Milk Policy

In the House of Commons on March 12th, in reply to Mr. T. Williams, Mr. W. S. Morrison, Minister of Food, said: The Government have had under consideration, in consultation with representatives of the milk industry, the question of milk policy after April 1st, 1940, and I hope to be in a position to make a full statement on the subject at an early date.

I am, however, able to state at once that the Government attach the greatest importance to the maintenance of an adequate supply of milk and are prepared, in order to ensure this, to safeguard producers' returns. The financial arrangements proposed to be made with the Milk Marketing Boards as from April 1st will be on the basis of a guaranteed pool price or other corresponding return to producers. For the period April 1st to September 30th this guaranteed return will be an average of 2½d. a gallon higher than the average return for the corresponding period of 1939, the increase over the return for the corresponding months of 1939 being as follows: April 2½d., May and June 2¼d., July and August 2½d., and September 3d.

These increases will apply equally to the different areas of Great Britain. They are designed, and are considered adequate, to cover increased costs of production, including the cost of wages and feeding stuffs, so far as have already occurred or are likely, on a reasonable expectation, to have occurred before September 30th, 1940.

The guaranteed return for the winter period from October 1st, 1940, to March 31st, 1941, which will be announced at a later stage, will be fixed with full regard to the Government's undertaking to agricultural producers that they will be ensured a return which will be reasonable and will enable them to pay a fair wage to the workers, and will take into account the increased costs

which normally have to be incurred in the production of winter milk and any further increases not already allowed for.

In addition, I have under consideration an increase in the price which is now being paid for fat cows. I am not in a position at present to make a definite statement on this but hope to be able to do so shortly as one of a number of adjustments in fatstock prices.

Replying to a further question by Mr. Williams, Mr. Morrison said that no charge would fall on public funds for this guaranteed price. The price would be met by the fund, which would be reinforced by charging more for manufactured milk. All considerations of cost had been carefully examined in arriving at the figure of 2½d.

Mrs. Tate asked if the right hon. Gentleman was not aware that the inadequate supply of milk was also due to the scarcity of feeding stuffs.

Mr. Morrison: I am quite well aware of that, but grass is growing now. (Laughter.)

Viscountess Astor: Does the right hon. Gentleman not think it would be better to have a long-term agricultural policy? Grass is growing on the Front Bench! (Loud laughter.)

. . . . .

The following are among the further questions and answers recently recorded in the House:—

Agriculture: Government's Long-Term Policy

Mr. De la Bere asked the Minister of Agriculture (1) whether he can make some statement regarding the long-term agricultural policy of the Government, or further instances of the Government's war agricultural policy;

(2) whether, as farming is a long-term business and requires a long-term policy, he can state what concrete plan the Government have for the future in connection with the newly ploughed-up acres, as to whether, after the war, they are again to be allowed to revert to grass?

The Minister of Agriculture (Colonel Sir Reginald Dorman-Smith): The principles on which the Government's war-time agricultural policy are based have been clearly indicated in statements made to Parliament, and in recent speeches, to which wide publicity has been given, by my right hon. Friends the Prime Minister and the Lord Privy Seal. The Prime Minister has also given assurances with regard to the Government's agricultural policy during the post-war years. There is nothing at present to be added to those statements. A wide range of measures, which will be extended from time to time as necessary, has already been put into operation to give effect to this policy.

Mr. De la Bere: Is not my right hon. and gallant Friend aware that what is wanted is a greater, bolder, and more generous scheme? Is he not further aware that we cannot have the opinions of War Agricultural County Committees or the National Farmers Union, and that he cannot annihilate truth by shutting them out of the Press? Why is this being done?

Mr. T. Williams: May I ask whether, in view of the large number of speeches, broadcasts, and statements made, the Minister of Agriculture will endeavour to put before the House the short-term war agricultural policy of the Government and their long-term policy as well?

Sir R. Dorman-Smith: I do not quite understand where we are to put it, but there is a Debate on Wednesday. Agriculture is a complicated matter, as it involves a number of different industries.

Mr. De la Bere: Is it not the fact that County War Agricultural Committees have had instructions from Whitehall that they must make no observations on Government policy?

Sir R. Dorman-Smith: No, Sir.

Mr. De la Bere: Perhaps my right hon. and gallant Friend will see me afterwards.

. . . . .

Meat Control (Inspection)

Mr. Rostron Duckworth asked the Minister of Food the nature of the schemes for inspecting meat under the new central slaughtering scheme; what expert staff has already been engaged and will be engaged; and whether he can give an assurance that the standard of meat inspection will be higher under the new scheme than the old?

Mr. W. S. Morrison: The inspection of meat under the Meat and Livestock Control Scheme is proceeding on the same lines as prior to the institution of control. As I stated on February 8th in reply to a Question by my hon. Friend the Member for Yardley (Mr. Salt), I have appointed a technical adviser to the Ministry on health inspection of meat; consideration is being given to the desirability of extending the staff so engaged.

. . . . .

Meat Control Scheme (Slaughterhouses)

Mr. Parker asked the Minister of Food how many slaughterhouses are being operated under the Meat Control scheme; and what was the number in use before the scheme was introduced?

Mr. W. S. Morrison: The answer to the first part of the hon. Member's Question is 801, and to the second part, approximately 16,000.

Mr. Alexander: Has any difficulty been found in getting a sufficient through-put through the recognised slaughterhouses?

Mr. Morrison: The authorised slaughterhouses are, I think, operating efficiently now. Naturally, there were at the beginning some difficulties, but I think they have been overcome.

Mr. John Morgan: With the approach of warm weather, will there be any increase in the number of slaughterhouses?

Mr. Morrison: That matter is being borne in mind. If it is necessary to increase the number of slaughterhouses, that will be done.

Mr. T. Williams: In cases where refrigeration is not available at the selected slaughterhouses, is refrigeration being provided?

Mr. Morrison: I can only answer that, in general, all the selected slaughterhouses are being equipped as efficiently as possible.

. . . . .

Pig Clubs

Mr. Price asked the Minister of Agriculture what arrangements have been come to to provide properly constituted pig clubs with a certain quantity of feeding stuffs to supplement household offals?

Sir R. Dorman-Smith: I am not at present able to add to the reply given to the hon. Member for Doncaster (Mr. J. Morgan) on February 14th by my right hon. Friend the Minister of Food to the effect that the question of the supply of feeding stuffs to pig clubs is under consideration.

Mr. Price: Is the Minister not aware that time is the essence of this business and that unless something is done to encourage the keeping of pigs on a small scale, there will be a considerable reduction in the number of pigs in the country before long?

Sir R. Dorman-Smith: I realise that time is the essence of the matter, but feeding stuffs are also essential, and we are trying to get these two considerations together.

Mr. T. Williams: Is the Minister of Agriculture getting a statement from his colleague the Minister of Food as to what he proposes to do regarding feeding stuffs for pigs?

Sir R. Dorman-Smith: That is another question.

Mr. R. C. Morrison: Will the Minister take steps to see that local authorities which are now collecting considerable quantities of food for pigs do not have it left on their hands after they have taken the trouble to collect it?

Sir R. Dorman-Smith: We are trying to deal with that matter.

Mr. De la Bere: Is the Minister not aware that straightrun feeding stuffs are unobtainable?

Pigs (Grading)

Mr. J. Morgan asked the Minister of Food whether in view of the high proficiency reached by the graders of sheep, he is now prepared to grade and pay for all pigs on a live weight basis at the collecting centres, and so avoid several grounds for dissatisfaction, including ear-marking, which exist?

Mr. W. S. Morrison: I am not prepared at present to make any change in the arrangements now in force, but I will bear the hon. Member's suggestion in mind.

Mr. Morgan: It is admitted, then, that the grading of sheep, which is a more difficult process than the grading of pigs, is proceeding very satisfactorily, and offers a guide with regard to pigs under similar conditions?

Mr. Morrison: I have had very few complaints about the grading of sheep, but, on the other hand, as the hon. Member is aware, the dead weight basis even for sheep and other cattle also has its votaries among the agricultural population.

. . . . . .

Pigs (Marking Practice)

Sir William Davison asked the Minister of Food whether his attention has been called to the fact that his Department has directed the cruel practice of punching holes in the ears of live pigs in connection with the Government's grading scheme; and will he see that any such order is cancelled forthwith?

The Chancellor of the Duchy of Lancaster (Mr. W. S. Morrison): The ear-marking of pigs has been very carefully investigated by responsible officers in my Department, and I am satisfied that, whilst the practice is not painless, the pain inflicted is only momentary and causes no undue or sustained distress to the animal. I do not accept the view that the practice is cruel and I am not at present prepared to cancel the order which is essential for identification of the pig at the slaughter-house.

Sir W. Davison: Is my right hon. Friend aware of the horrible scenes that have occurred in many markets owing to this practice; and is he also aware that the grading of sheep has been arranged and accomplished with great accuracy without any pain of this kind being caused to the animals?

Mr. Morrison: The suggestion of my hon. Friend would involve a change in the grading of pigs from a dead-weight to a live-weight basis, and that would raise very important considerations.

Mr. Thorne: Is the Minister aware that women have their ears pierced in order to put in ear-rings?

. . . . . .

Feeding Stuffs (Waste Products)

Lieut-Colonel Heneage asked the Minister of Supply the number of county boroughs outside London which have made arrangements to save swill or waste suitable for feeding livestock; and the names of those which have not?

Mr. Burgin: According to the records of my Department, the following 14 county borough authorities (out of a total of 83) outside the London area are at present collecting waste products suitable for stock feeding:—

Burton-on-Trent, Croydon, Halifax, Hastings, Hull, Leicester, Middlesbrough, Nottingham, Oldham, Plymouth, Portsmouth, Rotherham, St. Helens, and Worcester.

I hope that the above number will increase month by month.

Mr. Thorne: Is the right hon. Gentleman aware that as meat rationing comes into operation to-day, there will not be much waste?

Mr. R. C. Morrison: In conjunction with other Ministers, will the Minister of Supply consider taking early steps to see that, in view of the rapid increase of the collection of this stuff, some guidance and assistance are given to local authorities in the disposal of it; otherwise, if they merely concentrate their efforts on collection, they will find, as was the case with one local authority, that many tons will have to be burnt?

Mr. Burgin: I have that consideration in mind. The publicity which has been given to this matter is in some districts producing great difficulties as to disposal. It is a matter of organisation, and the position is increasingly improving week by week.

Commander Locker-Lampson: Could Members of Parliament be given a pamphlet to explain the subject?

. . . . . .

Poultry Feeding Stuffs

Mr. De la Bere asked the Minister of Food, in view of the fact that it is estimated that 21,000,000 poultry have been slaughtered since the outbreak of the war owing to shortage of feeding stuffs, whether he will take steps to ensure an increased allocation of feeding stuffs for the poultry producers throughout the country?

Mr. W. S. Morrison: I am not aware of the basis of the estimate referred to, but I would remind my hon. Friend that there is normally a seasonal decline in the number of poultry in the second half of the year. This decline was about 19,500,000 head in 1939 compared with 22,500,000 in 1938. I regret that I am unable to accept my hon. Friend's suggestion, which would have the effect of reducing the supplies of feeding stuffs available for other classes of livestock.

Mr. De la Bere: Did not my right hon. Friend tell us yesterday that the grass was now growing, and is he not aware that the difficulties of poultry producers are growing also? Why is it that up to now no equitable distribution has taken place? Will he take steps to expedite the scheme for more equitable distribution of feeding stuffs, because distribution is still very irregular throughout the whole country?

Mr. Morrison: The scheme for distributing the supplies that are available is going ahead very well, and I think matters have improved.

. . . . . .

Agriculture: County Committees

Mr. Riley asked the Minister of Agriculture how often meetings of county agricultural committees are convened; whether such meetings are prescribed by regulation or left to the discretion of the committees; whether full-time technically experienced officials are attached to each county committee; and whether he is receiving regular reports from the committees of the work they are doing?

Sir R. Dorman-Smith: I am not sure whether the hon. Member is referring to the agricultural committees of county councils or to the county war agricultural executive committees appointed by me. County agricultural committees are statutory bodies, over whose proceedings I have no jurisdiction. The constitution schemes of these committees provide that their proceedings shall be in accordance with such regulations as may be made from time to time by the county council, and subject thereto will be such as the committee may direct. The frequency of meetings of these committees probably varies in accordance with local requirements. Full-time technical officials are employed by the county councils and their services are doubtless available to the committees. Committees are not required to supply my Department with reports of their proceedings, but, in practice, many of them do so. The county war agricultural executive committees have, of course, largely superseded county agricultural committees under emergency conditions. The meetings of county war agricultural executive committees are not prescribed by regulation and arrangements are made by the committees to meet as often as is considered necessary. As a general rule, committees meet at least once a week and sometimes more often, in addition to meetings of sub-committees dealing with particular aspects of the committees' work. Full-time technical officials are attached to war executive committees and I receive regular reports from the committees of their work.

Horse Breeding

Sir E. Makins asked the Minister of Agriculture whether he is aware that the Mobberley and District Shire Horse Society estimate that, following the withdrawal of the heavy-horse breeding grants, the services in their area will be substantially reduced during the current year; and what steps he proposes to take to ensure that those farmers who have been able in the past to make use of stallions through assisted nominations will continue their applications in the future?

Sir R. Dorman-Smith: The reply to the first part of the Question is in the negative. With regard to the second part, I see no reason to suppose that farmers who have been granted assisted nominations for the use of stallions in the past will in present circumstances cease breeding operations.

Sir R. Gower asked the Minister of Agriculture whether he is aware that the grant in aid of heavy-horse breeding was withdrawn in 1922, but subsequently reintroduced in 1924 because the then Minister of Agriculture was satisfied that the withdrawal of the grants had discouraged co-operation among farmers in the hiring of stallions and had otherwise proved detrimental to the heavy-horse breeding industry; whether he is aware that the withdrawal of the grants this year can only have the same effect; and whether, if it is not possible to restore the grants in the same form as hitherto, he can make some alternative arrangements to ensure the active maintenance of heavy horse breeding in Great Britain?

Sir R. Dorman-Smith: I am aware that grants in aid of heavy-horse breeding were withdrawn in 1922 and were restored in 1924. I have given very careful consideration to representations that the present suspension of the grants will have a detrimental effect upon the heavy-horse breeding industry, but I regret that I cannot see my way to withdraw the suspension or to provide financial assistance to the industry on any alternative basis. I would add that the satisfactory prices ruling for heavy horses should provide an inducement to farmers to continue breeding operations.

. . . . .

Foxes

Mr. Alfred Edwards asked the Minister of Agriculture whether he is aware that a great and increasing sacrifice of time and effort is required in order to keep down foxes in Cumberland, where they are a grave menace to the food supply; and whether he is now proposing to take further action to reduce the number of these pests in Cumberland?

Mr. Ridley asked the Minister of Agriculture whether he will give particulars of the special measures taken to bring about a reduction in the number of foxes?

Mr. John Morgan asked the Minister of Agfriculture whether he will make regulations to provide compensation for damage done to farming land by hunting folk riding over sodden or sown fields; whether he is aware that masters of foxhounds are notifying poultry keepers that no payments for poultry killed by foxes will be made during the war; and whether he will take steps to secure compensation?

Mr. Leech asked the Minister of Agriculture whether his attention has been drawn to the increasing irritation of farmers about the continuance of hunting during wartime; the grave consequences to the food supply of the nation now involved in the damage to crops; the depredations of foxes artificially preserved and the wastages of food stuffs in the feeding of hunters; and whether he will take steps to protect the national interests by vetoing the practice of hunting?

Mr. Leslie asked the Minister of Agriculture whether, in view of the destruction of poultry and of lambs in the lambing season by foxes, he will include, in the special steps to be taken, their destruction in the breeding coverts?

Sir R. Dorman-Smith: With the hon. Members' permission I will answer these Questions together. I have received no representations by or on behalf of agriculturists, either through County War Agricultural Executive Committees or the National Farmers' Union, in regard to damage done to farming land by the continuation of hunting, and I see no justification for prohibiting the practice of hunting. I am not aware that action is being taken generally by Masters of Foxhounds Hunts to notify poultry keepers that no payment for poultry killed by foxes will be made during the war. In continuation of the replies which were given to the hon. Member for Sedgefield (Mr. Leslie) on February 15th and the hon. Member for Clay Cross (Mr. Ridley) on February 22nd, I am able to state that the Masters of Foxhounds Association are taking further steps to bring to the notice of Hunts the desirability of killing the maximum number of foxes during the remainder of the hunting season. The Association have also, at my request, agreed to ask Masters to take steps to secure the destruction of foxes in the breeding coverts.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

April 1st.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.

April 1st.—R.C.V.S. Annual Fees due.

April 8th.—N.V.M.A. Committee Meetings.

April 9th.—N.V.M.A. **Council** and Committee Meetings.

May 9th.—Last date for nominations, R.C.V.S. Council Election.

May 14th.—Provisional date for commencement of R.C.V.S. Animal Management Examination.

May 23rd.—Issue of R.C.V.S. Annual Report and Voting Papers.

May 30th.—Last date for receipt of R.C.V.S. Council Election Voting Papers.

June 6th.—**R.C.V.S. Annual General Meeting.** Victoria Veterinary Benevolent Fund Annual General Meeting.

June 27th.—R.C.V.S. Written Examinations begin.

July 3rd.—Provisional date for commencement of R.C.V.S. Oral and Practical Examinations.

* * * * *

AN APOLOGY

In our last issue we published, in our Personal Column, an intimation that Mr. Thomas N. Gold, M.R.C.V.S., of Church Green East, Redditch, Worcestershire, had been appointed to the Professorship of Surgery in the Royal College of Ireland, Dublin. We now learn from Mr. Gold that this announcement is incorrect, and we desire to offer our sincere apologies to him for the insertion of the erroneous notification, and to express our deep regret for the annoyance and inconvenience thereby caused.

* * * * *

PERSONAL

Will.—Mr. John H. H. Peard, Ashtown House, Castleknock, Dublin, formerly a well-known owner and breeder of racehorses and a veterinary surgeon, sometime managing director of Phoenix Park Club Race Co., left personal estate valued at £42,243. He gave:—

Any brood mares, foals or yearlings held in partnership with the Marchioness of Conyngham at Slane Castle to her.

R.C.V.S. OBITUARY

Cockburn, William Laurence, 156, Princes Street, Liverpool. Graduated N. Edinburgh, July 16th, 1896. Died March 13th, 1940; aged 65 years.

The Late Mr. W. Packman, M.R.C.V.S.

Mr. Walter Packman, whose death we recorded with much regret in our last issue, was one of Lancashire's oldest practising veterinary surgeons. A South country man, he went to Bury almost 60 years ago, and as a veterinary surgeon earned a wide reputation throughout the county. He was a vice-president and hon. veterinary surgeon of the Royal Lancashire Agricultural Show for two years, had officiated as president of the Lancashire Veterinary Medical Association, and was for several years a member of the Council of the Royal College of Veterinary Surgeons.

* * * * *

VETERINARY SERVICES IN THE OUTER ISLES

When a report on veterinary services in Skye and the Outer Isles was submitted to the Inverness Council Council, Mr. F. W. Walker, Leys Castle, asked what was being done about veterinary services for the crofters on the Mainland. The services in the Inverness-shire Mainland were not very great, for there was only one veterinary surgeon for the whole of the Mainland.

The County Clerk said the crofters on the Mainland were definitely without subsidised veterinary services.

Major Fraser suggested that strong representations should be made to the Department of Agriculture and a deputation sent to present the views of the Council regarding the matter. The suggestion was adopted.

* * * * *

LEGAL NOTES

Failure to Notify Swine Fever.—At Tunbridge Wells County Court recently, Angus Forbes, of Sandhurst Farm, Lamberhurst, was summoned for having possession of the carcases of eight pigs affected with swine fever and failing to give notice to that effect.

Mr. F. S. Harries defended and pleaded guilty.

P.C. Varrall said he called with reference to a licence held by defendant for 13 pigs, and found that there were only six. He enquired about the remaining eight pigs, and defendant replied that they were dead and buried. Told he would be reported for not notifying the deaths of the pigs, defendant made a statement, in which he said the pigs died within three days of his buying them. He was very sorry he had not proceeded in the proper manner, but he was not aware the death of pigs had to be reported unless swine fever was suspected.

Mr. G. S. Peyton, veterinary surgeon, gave evidence of examining the pigs after they had been exhumed, and finding they had suffered from swine fever.

Mr. Harries told the Bench that defendant bought the pigs under licence as being in a satisfactory condition. Two died the following day, and eight were dead at the end of three days. Defendant had never seen a case of swine fever and the thought of it never entered his head.

Forbes was fined £5 with 15s 9d. costs.

* * * * *

"*Irish Trainer Summoned.*"—The Registrar, Veterinary Council, Eire, writes in reference to the report appearing under the above heading on page 193 of our issue of March 9th, relative to proceedings instituted by the Veterinary Council of Ireland against the Honourable Gerald Wellesley: "In that report it is stated that the case was dismissed under the Probation Act, a statement which is obviously incorrect. The Honourable Gerald Wellesley was found guilty but the Probation Act was applied on condition that £5 be put in the Court Poor Box and the costs of the proceedings by the Veterinary Council paid by him."

LIVESTOCK FEEDING: MORE HOME-GROWN WHEAT AVAILABLE

A larger proportion of home-grown wheat is to be made available for feeding to livestock. An order made by the Minister of Food permits every approved buyer to sell or use during a calendar month for purposes other than flour milling or seed not more than one-half of the quantity remaining from his total purchases of millable wheat from registered growers during that month, after deducting from such total purchases the amount of any millable wheat bought by him during that month for use as seed.

The order also permits a flour miller to use during a calendar month, for any purpose, not more than one-third of his total purchases of millable wheat during that month from other approved buyers. The provisions of the general licence allowing an approved buyer, who is not also a flour miller, to use for any purpose all millable wheat bought by him from another approved buyer remain in force.

* * * * *

MINISTER OF FOOD ON FEEDING STUFFS POSITION

Addressing the Farmers' Club on March 11th, Mr. W. S. Morrison, Minister of Food, explained that every inch of available storage space for grain was full with wheat at the outbreak of war. People might question the wisdom of that policy, he said, but in his view it had justified itself. Before the war, when he took over the duty of supervising food, there were plans to build new silos for storage of feeding stuffs, but these took time to construct, and as the situation turned out, the wheat had to come first.

The wheat supply had been secured and it had not been necessary to make an order, such as was made in the last war, making it an offence to use grain for anything but human food stuffs. They had been able to leave a great part of the home-grown grain for feeding to stock.

Mr. Morrison referred to the difficulties of rationing supplies of feeding stuffs to farms—difficulties which had so far proved insuperable. They had, therefore, to ration supplies as best they could, through the port importers and the merchants. Recently, they had taken steps to improve the system of requiring all merchants to be licensed and by requiring them to keep accounts so that the Ministry could see that as far as possible the merchants were treating their customers fairly. Mr. Morrison claimed an improvement in the supply position, and said that the Ministry had now released the promised 66 per cent. of the average monthly consumption of imported feeding stuffs. The milk and beef sections of the industry, he said, would continue to have preference.

On the question of the prices paid for farm produce, Mr. Morrison said that the prices of barley and oats were the highest for 20 years and the fat cattle prices were now higher than they had been for 18 years. Clean cattle of first and second grade were averaging about 28 per cent. more than last year. That was an earnest of the Government's intention to secure really remunerative prices for farmers.

* * * * *

ULSTER HORSE BREEDING AIDS WITHDRAWN

All subsidies to agricultural shows in Ulster and subsidies for the purchase of stallions under the horse-breeding scheme will be cancelled by the Ulster Ministry of Agriculture at the end of this year. The Stallion Premium Scheme will cease except for animals purchased with the help of Ministry subsidies. The Ministry, explaining these decisions in a letter to Tyrone Committee of Agriculture, state that they were obliged to make further economies on all services not absolutely essential to the war effort. Mr. Rowley Elliot, Chairman, said local shows could not carry on without subsidies.

Contents

PAGE

GENERAL ARTICLE:

Grass Sickness in Horses—Biochemical Investigation ... JAMES STEWART, W. S. GORDON and JENNIE WHITELAW MCCALLUM 237

CLINICAL COMMUNICATION:

Suspected Grass Sickness ... E. WALLACE 243

EDITORIAL:

The Profession and the Ministry of Food ... 245

ABSTRACTS:

Internal Strangulation of the Small Intestine in a Horse by the Deferent Duct (Uberreiter, O.) J. E. 245

Methods of Obtaining Semen, its Examination and Artificial Insemination in Domestic Animals (Gotze) ... ... A. R. 245

The Transformation of Carotene into Vitamin A in Liver Autolysates (Wilson, H. E. C., Ahmad, B., and Mazundar, B. N.) ... ... D. D. O. 245

Baitless Fly-trap Screen (Derrick, J. D.) D. D. O. 245

PAGE

REPORT:

Assam: Report of the Civil Veterinary Department for the year 1938-39 (Ghose, S.) G. K. W. 246

N.V.M.A. DIVISIONAL REPORT:

Lincolnshire and District V.M.A.: Annual General Meeting at Grantham 246

ROYAL COLLEGE OF VETERINARY SURGEONS:

Membership Examination Results 249

IN PARLIAMENT 249

NOTES AND NEWS:

Diary of Events 252
The Profession and Military Service 252
National A.R.P. Animals Committee 252
General Obituary: Sir Patrick Laidlaw 252
R.C.V.S. Obituary 253
Personal 253
Register of Veterinary Surgeons 253
Stricter Meat Inspection for Portsmouth ... 253
Liverpool Degree Examinations 253
Horse Grant Suspension Protest 253
The Supposedly Sterile Syringe 254
The Antimony Treatment of Kala-Azar 255

JOINT-ILL (NAVEL-ILL) IN FOALS

For the prevention and treatment of this disease, we issue a reliable polyvalent serum and vaccine,

'ASTIBULIN' and JOINT-ILL VACCINE

The Serum, 'Astibulin,' is injected into the foals either as a preventive or as a cure. The vaccine is used prophylactically in the dams only.

NOTE: Astibulin contains antitoxins as well as antibodies, hence its extraordinary efficacy.

BAYER

PACKINGS

ASTIBULIN (SERUM)
Bottles of 50 c.c. and 100 c.c.

JOINT-ILL VACCINE
Ampoules of 10 c.c. and bottles of 15 c.c. and 50 c.c.

BAYER PRODUCTS LTD., AFRICA HOUSE, KINGSWAY, LONDON, W.C.2

Factors in Canine Nutrition

[No. 13]

The protein content of Admin (continued)

Researches already published show that the following (but no more than the following) amino-acids are essential for the protein requirements of a dog:— lysine, tryptophane, histidine, phenylalanine, leucine, isoleucine, threonine, methionine, valine, and arginine. Of these ten, nine are certainly present in ADMIN, and the tenth, threonine, is probably present. The isolation of threonine is so recent that chemists have not yet had time to investigate its distribution. However, if butcher's meat is accepted as a sufficient source of protein, then threonine must be present in butcher's meat. Since ADMIN contains all the amino-acids in meat (as well as the wider range provided by vegetable protein), it follows that ADMIN probably contains threonine as well.

What Admin Contains

ADMIN contains a minimum of 15,625 international units of Vitamin A; 3,906 international units of Vitamin D; 2,510 international units of Vitamin B.1 per pound, and proportional amounts of the rest of the Vitamin B complex and Vitamin E, which have as yet no international standard. It supplies assimilable calcium, phosphorus, iron, copper, manganese, and iodine in the optimum quantities and proportions. Moreover, 1 oz. of ADMIN contains as much protein nourishment as 3 ozs. of prime raw fillet steak.

PACKETS 6d. and 1/6d. (about ¼-lb. and 1-lb. respectively) are sold to the general public through chemists and corn chandlers. The 7/6d. tin (containing about 7 lbs.) is supplied to qualified Veterinarians at 5/6d. Orders of 3 tins and over are sent carriage free.

ADMIN FORTIFIES FOOD

Issued by COOPER McDOUGALL & ROBERTSON LTD, BERKHAMSTED, HERTS